

THE JOURNAL OF
**MEDICAL
EDUCATION**

OFFICIAL PUBLICATION OF
THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES



NOVEMBER 1956 • VOLUME 31 • NUMBER 11

PROGRAM OF THE 67TH ANNUAL MEETING

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- Radiology in the Medical School.....Charles T. Dotter
Some Student Concepts of Functional Disease.....Joseph E. Bogen
A Method of Teaching Combat Surgery....Lt. Col. H. Haskell Ziperman
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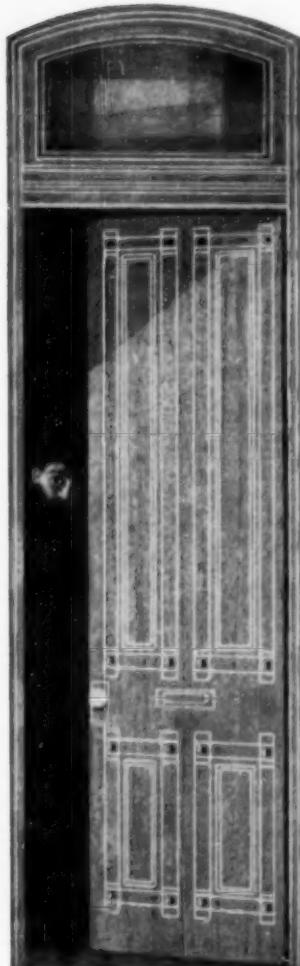
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American Academy for Cerebral Palsy—Nov. 17-19; Congress Hotel, Chicago, Ill.

American College of Cardiology—Nov. 28-30; Empire State Building, New York, N. Y.

American Fracture Association—Nov. 29-Dec. 2; Drake Hotel, Chicago, Ill.

Association for Research in Nervous and Mental Diseases—Dec. 7-8; Hotel Roosevelt, New York, N. Y.

American Academy of Dermatology and Syphilology—Dec. 8-13; Palmer House, Chicago, Ill.

Sixth International Congress of Otolaryngology—May 5-10; Washington, D.C.

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*TRADEMARK



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Mr. Pickwick's Good Opinion...

"IN OTHER words they're Medical Students, I suppose?" said Mr. Pickwick. Sam Weller nodded assent.

"I am glad of it," said Mr. Pickwick, casting his nightcap energetically on the counterpane. "They are fine fellows; very fine fellows, with judgements matured by observation and reflection; and tastes refined by reading and study. I am very glad of it."

"They're a smokin' cigars by the kitchen fire," said Sam.

"Ah!" observed Mr. Pickwick rubbing his hands. "Overflowing with kindly feelings and animal spirits. Just what I like to see!"

"And one of 'em," said Sam, not noticing his master's interruption, "one on 'em's got his legs on the table, and is drinkin' brandy neat, vile the t'other one —him in the barnacles—has got a barrel o' oysters atween his knees, vich he's a openin' like steam, and as fast as he eats 'em, he takes a aim with the shells at young dropsey, who's a sittin' down fast asleep, in the chimbley corner."

"Eccentricities of genius, Sam," said Mr. Pickwick. "You may retire."

—Charles Dickens (1812-1870).



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*The American Foundation: Medical Research: A Midcentury Survey, Boston, Little, Brown and Company, 1955, vol. 1, p. XXXI.

***Ibid.*, p. 600.

Radiology in the Medical School

CHARLES T. DOTTER

THE TEACHING of radiology to medical students at the University of Oregon Medical School is based upon the premise that useful knowledge cannot be attained without practical experience. In a medical school, brilliant teachers cannot serve in lieu of the problems of actual patients. Lectures, though superbly organized, illustrated and delivered, do not constitute an adequate substitute for realistic clinical experience, no matter what student enthusiasm engendered. X-ray films comprise much of the working material of the radiologist. If for no other reason, this is fortunate for teaching purposes since, unlike the patient, radiographs are easily carried home for study by the student. They can be duplicated at will and each copy retains the reality of the original clinical problem. To fail to exploit this advantage is to do injustice to both the student and academic radiology.

Radiology at Oregon

Classes at the University of Oregon Medical School are composed of approximately 70 students. The course in diagnostic radiology is given at the third year level and consists of 33 hour-long exercises at weekly intervals. Three 11-week trimesters are devoted to the chest, the skeleton and the gastrointestinal system. Each trimester is begun by three introductory lectures, during which an

attempt is made to present to the student various approaches to the concept of a three-dimensional patient reconstructed on two-dimensional x-ray films. Following these lectures, students are assigned cases from the departmental teaching file. These carefully selected cases are prepared as they might appear awaiting routine dictation in a radiology department or radiologist's office. A requisition containing clinical data is supplied with the films. In the interest of reality, the clinical information on this requisition varies markedly in quantity and quality. Generally, it is determined by the radiographic findings. Students are allowed to keep the films in their possession for one week. Thereafter, and at seven weekly intervals, sessions are held in six small groups, each of which meets with a faculty radiologist. Students, cases and instructors rotate each week. Cases are assigned to the students in bright blue envelopes, a maneuver in the interest of department advertising which has to this date not been branded unethical (although the medical school orthopedists are rumored to be considering purple casts). In addition to handing in a written report, students informally present their radiographic findings and interpretations. Lively discussion, at times bordering upon actual battle, is customary. That the teaching is retained is evidenced by examinations held at the end of each trimester. These examinations consist of multiple choice questions asked in con-

Dr. Dotter is professor and head of the department of radiology, University of Oregon Medical School.

Radiology in the Medical School

nection with the projection of slides made from the teaching films used during the trimester.

Public X-ray quiz

In addition to the informal conference, each week a "public" x-ray quiz is conducted using viewboxes in the medical school library. Members of the class in radiology place their diagnoses in a convenient ballot-box. Interest is favored by knowledge that the student scoring highest on these quizzes will be excused from final examination and given an "A" for the trimester.

The departmental teaching effort is not limited to contact with the medical student during the formal course in radiology. Infiltration tactics are employed in that radiologists assist in the anatomy dissecting room, give short weekly lectures in conjunction with the formal course in pathology and in general are audible contributors to all relevant clinical conferences, particularly important during the fourth year of curriculum. Often taken for granted, the radiologists' presence at such conferences results in a many-fold increase over the number of formal curriculum hours allotted to the department. An elective in radiology is offered at the fourth year level. Through the reporting of current cases, the elective goes a step farther than the third year home-study course in enhancing learning through a realistic, practical approach to x-ray diagnosis. In both programs, the faculty-student contact is at the individual level. (Teaching which is devoid of personal relationships could be just as effectively and more economically accomplished by tape recordings rather than faculty members!)

Although mildly unorthodox, the method of teaching diagnostic radi-

ology at the University of Oregon Medical School appears to be more effective than formalized lecture-demonstrations given in darkened rooms to students rendered drowsy by their inability to see clearly the actual radiographic findings under discussion. Being allowed to take films home with them for a week, students gain from simulated clinical situations where their thinking is not mechanically channelled by a harried lecturer blasting through his notes in a crowded lecture room. The phrase "cover the high spots" is often a public acknowledgment of the inadequacy of teacher or curriculum.

Augmented staff

Unquestionably "small group" teaching methods require an augmented active teaching staff. In radiology, this is practical and highly desirable. Requiring no more preparation than that afforded by their every day practice, participation in the conferences has proved to be interesting and rewarding to faculty members. It has tended to improve and cement relationships between part and full-time faculties. Without imposing a burden, the small conference method gives all members of the volunteer faculty an important role in the teaching of their specialty. Undeniably, in many of our country's medical schools there exists dis-harmony between members of the full-time and part-time faculties. This is said to take evil root in economic factors. Not entirely; if this were the entire explanation it would also cause a comparable strain in relationships *within* the two groups. The volunteer faculty member bases loyalty to his medical school, not upon dollars and cents, but upon his desire to teach medicine. To make him emotionally, as well as nominally a

member of the faculty, this must not be forgotten. It is sometimes alleged that the complaining members of the part-time faculty are those who bear little or none of the teaching load. While this may be true, it should not be assumed that their complaints reflect an unwillingness to serve. The trouble is sometimes due to the simple fact that no one asked them to help—. If the volunteer faculty

La Radiología en las Escuelas de Medicina

La enseñanza de la Radiología a los estudiantes médicos de la Universidad de Oregón, está basada en la premisa de que no se puede alcanzar conocimiento útil sin experiencia práctica. Las clases de Radiología tienen en dicha Universidad 70 alumnos, aproximadamente. El curso de Radiología diagnóstica, que consta de 33 horas de ejercicios, se da para estudiantes de tercer año. Once semanas de cada trimestre se dedican a la radiología del pecho, del esqueleto y del sistema gastro-intestinal. Cada trimestre se inicia con tres conferencias introductorias en las que se trata de presentar a los estudiantes varios ángulos del problema de "trasladar" un paciente tri-dimensional a una placa radiográfica bi-dimensional. Las conferencias son seguidas por trabajos de los estudiantes con placas procedentes de los archivos especiales de enseñanza, provistas de los datos clínicos pertinentes. Se permite a los estudiantes que se lleven éstas a casa y las guarden durante una semana. Más tarde, a intervalos de 7 semanas, hay sesiones para 6 pequeños grupos, con un radiólogo de la Facultad para cada grupo, durante las cuales, además de entregar un informe escrito, los estudiantes presentan los datos encontrados y sus interpretaciones. Discusiones acaloradas suelen resultar. A fines de cada trimestre, hay exámenes, que consisten en preguntas en

membership is not disproportionately large, its members should be expected to contribute equally to the teaching effort. The level of participation should be essential. The uncalled upon volunteer, forced to rationalize his position on the teaching staff can hardly be expected to value it highly. Dead wood burns brightly if ignited; its flame may be one of service or one of destruction.

conexión con la proyección de placas. Además de las discusiones informales, cada semana tiene lugar un "interrogatorio público" en materia de rayos X, en el cual cada estudiante tiene que hacer diagnóstico en competencia con sus colegas. Se combina también la Radiología con otras materias, por ejemplo, un radiólogo suele estar presente en la sala de disecciones, otro dicta cada semana alguna corta conferencia relacionada con el curso de Patología; y, por lo general, los radiólogos participan en todas las discusiones clínicas, que son particularmente importantes para estudiantes de cuarto año. Estos pueden también asistir a un curso de Radiología más avanzado, y no obligatorio, que trata de enseñar cómo hacer diagnóstico realista y prácticamente sobre base de los rayos X. El autor del presente informe, discutiendo lo descrito, así como algunos otros rasgos que caracterizan la enseñanza de la Radiología en la Universidad de Oregón, ha llegado a la conclusión de que tales métodos poco "ortodoxos" resultan más eficaces que las usuales conferencias-demostraciones que suelen tener lugar en salas de clase oscurecidas, ante una audiencia adormilada e incapaz de ver claramente los datos radiográficos comentados.

* * *

Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un mínimo de 25 lectores.

Some Student Concepts of Functional Disease

JOSEPH E. BOGEN

I. Introduction

IN A RECENT sophomore medical school class, while discussing the differential diagnosis of blood in the stool, the professor mentioned "functional bleeding" as one of the possibilities. When asked by one of the students to explain in greater detail, he said that what he meant was "bleeding which occurs in small amounts at erratic intervals and evidently from different places so that its source cannot be established."

Following the class the student who asked the question was berated by one of his fellows for asking a needless question and taking up class time, since "Everybody knew what he meant when he said that." Spurred on by this criticism, the student presented to his classmates the following formal offer:

A FREE BEER!

(or reasonable substitute therefor)

TO ANY MEDICAL SCHOOL AFFILIATE who will contribute a written definition, of 50 words or less, of the word "FUNCTIONAL"—as used in the expression "a functional disease" or a "functional disorder." Please confine vocabulary used to the description of findings (history, exam of patient, lab. findings, etc.) or description of treatment to be followed or prognosis.

At the time this article was written, the author was a student at the University of Southern California School of Medicine. He is presently an intern in surgery at the New York Hospital-Cornell Medical Center.

There were 19 contributions in response to this offer; most of them led to short, written exchanges which are included below with the respective definitions.

II. Results

1. Student D. F.: "I think [the professor] meant functional as idiopathic."

2. Student B. B.: "Functional disorder is a category of diseases in which the etiology is controversial. The implication is that there are one or more independent functions involved in the etiology."

3. Student A. P.: "Functional disease [means] a physiological disturbance without demonstrable pathology."

Question: Does this mean that a functional disease is never serious?

Answer: "Yes."

4. Student D. S.: "The term 'functional disorder' is commonly taken as defining that type of patient complaint which sports a plethora of symptoms in the absence of pathology or reason for suspicion of pathogenesis. Signs if present are of types under nervous (autonomic) or conscious mental control."

Question: Can functional disorders be very serious?"

Answer: "Yes. They may lead to death or disease: e.g., G.I. ulcer."

5. Student G. K.: Possibly [the professor] believes that a certain amount of G. I. bleeding normally

occurs. Possibly he considers ulcerative colitis etc. functional since there is a psychological component. Probably he uses the term in place of the term 'idiopathic'."

Question: "Could this functional bleeding be serious?"

Answer: "By use of the word, I assume [the professor] means that it isn't serious. This is probably his category for anything without either definite cause or serious sequelae."

6. Student W. M.: "Functional disorder: an aberration from normal (disorder) which involves the normal function of the subject in discussion (rabbit, man, I. B. Machine)."

Question: "Is a broken arm a functional disorder?"

Answer: "Yes."

Question: "Are there any diseases which are not functional (disorders)?"

Answer: "No."

7. Student R. D.: "A functional disorder is one whose cause is to be found in the inherent constitution of the individual. The physiological makeup of a person predisposes him to his functional disorder and this 'disorder' should not be considered to be pathological for him until there are gross changes both physically (clinically) or mentally (e.g. psychosis)."

Question: "Does this mean that 'functional disorders' are to be considered normal variations (in the statistical sense) and not as disease?"

Answer: "Yes."

8. Student L. B.: "Functional disease is that due to disturbances in physiological processes and may be due to organic or psychic factors. This [is] to say that no abnormal processes are present but only an excess, decrease or absence of normal physiologic mechanisms."

Question: "Is myxoedema due to low I_1 intake a functional disease?"

Answer: "Yes."

Question: "How about hypervitaminosis D associated with demonstrable lesions?"

Answer: "Yes."

9. Student J. J.: "Functional disease—one which would respond better (in a statistically significant way) to psychotherapy (of any kind) than to any other type of therapy."

10. Student R. M.: "Functional—as used in 'functional disease':

(1) A disease producing no organic pathology demonstrable by present clinical methods. E.g., delirium tremens.

(2) A disease having no demonstrable organic basis, but producing clinical signs and/or symptoms. E.g., peptic ulcer.

(3) Must be distinguished from 'functional' as used to denote 'hyperfunction' as in functioning endocrine neoplasms, or to denote normal physiological variation."

Question: "Under which of these definitions did you interpret [the professor's] expression of 'functional bleeding'?"

Answer: "Under number two."

Question: "Do functional diseases always involve the mind as a causative factor?"

Answer: "No."

11. Student A. K.: "A functional disease is a condition of the body which would lead a trained doctor to consider organic disease with some explainable cause. However, primary cause cannot be obtained physically or by laboratory and there is some history of correlation with mental aggravation by intra- or extrapersonal causes."

Question: "Does a functional disease always involve the mind as a causative factor?"

Answer: "Yes."

Some Student Concepts of Functional Disease

12. Student W. B.: "A functional disorder is a derangement of normal physiologic function whether it be tissue, organ or system as opposed to disorders of tissue, organ or system wherein pathological changes can be demonstrated."

Question: "In other words, not organic?"

Answer: "Yes, [it is never organic]."

Question: "Must a functional disorder always involve the mind as a causative factor?"

Answer: "No!"

13. Student J. Y.: "Functional disorder—a physiological derangement in an organism due either to alterations in structure or the metabolism of the cell, tissue, organ or system."

Question: "Please name a disease which does not involve a 'physiological derangement'."

Answer: "There are none."

Question: "Then, are all diseases 'functional diseases'?"

Answer: "Yes."

Question: "Is there any kind of bleeding which is not functional?"

Answer: "Hemorrhage: menorrhagia vs. menstruation."

Question: "Is there any kind of bleeding from the gut which is not functional?"

Answer: "No."

Question: "Can a functional disease be organic too?"

Answer: "Yes."

14. Student A. W.: "Functional disorder" is a concept valid as long as a distinction between structure and function can be made [and consists of] a major defect, not in the parts themselves, but in the relations of the parts to each other. Purely functional disorders therefore are theoretically reversible."

Question: "Is it not possible to have an irreversible change in the relations (in space) between parts?"

Answer: "In this case the change in space is a change in a part. 'Relations' is defined to be much more inclusive than merely 'spacial relations'."

Question: "Can we distinguish 'functional disease' vs. other disease on basis of reversibility, or is reversibility merely an incidental corollary?"

Answer: "I think reversibility is merely a corollary to emphasize that the defect is not in the part itself. In organic disease the defect is in the part; the severity of the disease is related somehow to the extent of the damage and the importance of the part—and is not as readily reversible. You should have accepted my original . . . definition."

Question: "Do you feel 'functional' and 'organic' to be mutually exclusive categories of disease?"

Answer: ". . . in many instances I feel the terms are justified. [For example] achlorhydria: functional—cells are O. K. but no vagal impulses reach the cell; organic—cells are damaged, are stimulated, but do not respond. I'm sure you can see how this can easily fall apart—e.g. trace back the vagal defect in the functional disorder—but the achlorhydria might be 'functional' by my definition."

15. Student D. P.: "No disease is either 'functional' or 'organic.' However, as the etiology and course of disease are determined by multiple factors, we may call a disease organic in which demonstrable or reasonably assumed physical factors are primary; and a functional disease, that in which the primary factors are, or are reasonably thought to be psychic in origin."

Question: "Is this a description of findings?"

Answer: "You know damn well functional and organic diseases as defined above can give the same symptoms. [The] distinction lies in etiology and factors contributing to course."

16. Student L. T.: "A functional gastro-intestinal disorder is a result of an actual physical imbalance in the diet or due to poor hygiene habits resulting in G.I. tract disturbances which are characterized by diarrhea, constipation, etc. With better hygienic habits, a better environment in terms of good food particularly, and often rest, the functional disorder clears up (Assuming that the patient has not neglected himself to such a state that cure is much more of a difficult job, and easier for the doctor than just to say he is 'neurotic' etc.)"

Question: "Do functional diseases always involve the mind as a causative factor?"

Answer: "No."

17. Student R. V.: "A 'functional disease' or a 'functional disorder' refers to:

- (a) a disorder of function of the part
- (b) a disorder caused by function
- (c) a disorder in which function of a part is retained but the ability of the part is impaired."

Question: "How can function be retained if ability is impaired?"

Answer: "There is dysfunction but not permanently."

18. Student J.K.: "There are two definitions in medicine. (1) The impairment of the action of a cell, tissue, organ or organ system by debilitation of the ordinary actions through which is accomplished the sustenance of complete physiological stability. (2) Anything that is a disease which is not organic is functional."

19. Student P. Z. "Functional dis-

order means just what [the professor] said: sort of here and there and you don't know what causes it."

Question: "Is that the same as idiopathic?"

Answer: "Not exactly—it [concerns] psychosomatic disease."

Question: "Can an illness be psychogenic and idiopathic at the same time?"

Answer: "Listen Bogen, you are a wrong thinker and a trouble maker. I wrote you a definition; now when do I get a beer?"

A functional disorder, according to the above definitions is apparently characterized as one or more of the following:

1. An idiopathic disease. (Definitions 1, 5, 19)
2. A disease of multiple causation. (Definitions 2, 16)
3. A psychogenic disease. (Definitions 4, 5, 9, 11, 15, 19)
4. All diseases. (Definitions 6, 13, 17, 18)
5. A normal variation and not a disease. (Definitions 3, 7, 10)

Broken down another way, the definitions indicate that a functional disease:

1. May be organic. (1, 2, 4, 5, 6, 8, 9, 10, 11, 13, 14)
2. Is never organic. (3, 4, 7, 10, 12, 15, 18)

Moreover, a functional disorder is either:

1. Relatively harmless (3, 5, 7, 16) or
2. Possibly productive of death. (4, 5, 6, 8, 10, 13)

On the basis of 19 (of 66) students who wrote down their opinions, it seems rather unlikely that the students all knew what the professor meant when he spoke of "functional bleeding." Moreover, verbal exchanges with other students from neighboring medical schools showed the same variability in interpreta-

Some Student Concepts of Functional Disease

tion. In this connection it is interesting that most of the students indicated little doubt as to their own use of the word "functional." As one fellow said, "I may not be able to explain it the way I want, but I know very well what I mean when I say it." There seemed, moreover, to be a feeling on the part of some that worrying about this sort of thing is a waste of time which would be better spent learning the mimeographed notes handed out by instructors. Said one realist, "I'll buy you a beer if a question like this ever appears on a medical school exam."

III. Discussion

Although this exchange with fellow students began as a momentary whim it soon became a conversation piece that has continued to be a subject for lunch hour argument for well over a year. During this time it has become apparent that many of the students have considered a multiplicity of signs and/or symptoms as evidence of a cryptogenic condition. It has often been implied that if the cause of a disease is unknown, it probably has its origin in "the mind." Some have felt that psychotherapy is the answer to a "functional problem," whatever its cause.

Could not some of these feelings result in unfortunate diagnostic or therapeutic mistakes? Professor Stanley Cobb* writes:

In summary, I would insist that the old dichotomies "functional or organic, mental or physical" are not only wrong, but lead to bad habits of thinking because they lead to static and obsolete ideas and do not allow for modern pluralistic and dynamic ideas of matter and structure. Physiology is the basis of clinical diagnosis, and no physi-

* *Borderlands of Psychiatry*, Harpers, 1937, p. 21.

ologist would accept for a moment the clinical jargon that uses the word "functional" to denote "psychogenic." Anybody who stops to think realizes that no function is possible without an organ that is functioning and therefore no function takes place without structural change. Every symptom is both functional and organic. It is never a question of "either—or."

At the time I first encountered this quotation it seemed to sum up, exactly, my own feelings. Since then, however, I have come to feel that it is not altogether adequate and that the expression "functional disorder" can be useful. For example, one might define it as follows:

An organ (system, etc.) is suffering a functional disorder when its abnormal output is caused not by internal failure, but by abnormal input. This necessarily implies rapid reversibility with change of input. The diagnosis can only be made of a specifically named organ (or system) and should include specification of the probable source of abnormal input.

This resembles definition 8 above and corresponds quite closely to definition 14.

The definition I have suggested represents the present consensus of a half-dozen students who have participated in the ever-continuing rehashing of this question. Almost the entire remainder of the class, if not in agreement, has at any rate become aware of the ambiguities involved and there are frequent smiles whenever the word "functional" is used by members of the attending staff. On several occasions where students have abstracted hospital case histories for clinico-pathological conferences, they have emphasized the diagnoses of "functional" made some months before the terminal illness occurred.

Judging by the gradual increase of

interest in the problem on the part of the students, it seems reasonable to expect that they would welcome its discussion by the faculty. Moreover, some formal presentation of the problem seems warranted by the ubiquity and pervasiveness of the underlying philosophic problems. These have already been made the subject of formal course presentations in some medical schools* and may well deserve more widespread attention.

IV. Summary

1. Although the word "functional" seems to be used to describe disease states almost as often by medical students as by their instructors, there is often little agreement as to its meaning. It has been used variously to mean "idiopathic," "psychogenic," "psychosomatic," "unimportant," "malingered" and "nonexistent." Such

ambiguity has been present in the use of the word "functional" by students of at least three medical schools in California.

2. It is suggested that such ambiguity can lead to diagnostic and/or therapeutic error. Possible solutions of the problem include abandonment of the word as a medical term,** or a more exact definition, or, at least, more widespread recognition of its misleading nature. It is suggested that discussion of such problems might well be made a part of the formal medical curriculum.

REFERENCES

* Johnson, M. L. *A Course on factors influencing scientific judgement*. *J. Med. Educ.* 30: 391-397 (1955).

**E.g., Dr. Hans Lowenbach has informed me that use of the word "denies" in medical histories has been discouraged at the Duke University School of Medicine.

Sobre una Definición de "Enfermedades Funcionales"

Un incidente, ocurrido en una clase de estudiantes de Medicina de segundo año, el cual reveló claramente las dificultades que surgen al querer definir el significado exacto del término "funcional", y los varios conceptos erróneos a que da lugar entre los estudiantes, dió ocasión al autor del presente artículo a discutir este problema de terminología, y otros parecidos, así como las serias consecuencias que podrían tener. El autor está—con ciertas reservas—de acuerdo con el Prof. Stanley Cobb, de cuya obra "Borderlands of Psychiatry" (Harper, 1937) cita el pasaje siguiente (véase p. 21): "... yo quisiera insistir en que las viejas dicotomías 'funcional u orgánico', 'físico e mental' no sólo son falsas, sino que llevan a malos hábitos en el pensar, porque conducen a ideas estéticas y anticuadas, y representan un obstáculo para la difusión de modernas ideas sobre materia y estructura. La fisiología es la base de la diagnosis clínica y no hay fisiólogo que acepte por un momento esa jerga clínica en la que se usa la palabra "funcional" para denotar "psicogénico". Cualquier persona que piense se dará cuenta que ninguna función

es posible sin un órgano que funcione, y que, por tanto, no hay función sin cambio de estructura. Todo síntoma es a la vez funcional y orgánico. Nunca se puede tratar de 'o la uno o lo otro'".

El autor cree, sin embargo, que la expresión "enfermedades funcionales" no es del todo inadecuada y podría ser usada si es propiamente definida. El sugiere una definición basada en varias propuestas por los estudiantes en discusiones que, a raíz del mencionado incidente, se prolongaron durante todo un año. Concluye observando que el término es ambiguo, que hay poco acuerdo en cuanto a su significado exacto, y que esa vaguedad podría ocasionar incluso errores de diagnóstico o terapia, y propone dos soluciones posibles del problema: una definición más exacta del término "funcional", o su completo abandono como término médico. Se sugiere que una discusión de este y otros parecidos problemas de terminología médica podrían formar parte del *curriculum* de las Escuelas de Medicina.

* * *

Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un mínimo de 25 lectores.



The "laboratory" consists of two parts—the wounding pit, constructed according to Army Ordnance Safety Regulations; and the Mobile Army Surgical Hospital, erected in front of stands where students are seated.

A Method of Teaching Combat Surgery

LT. COL. H. HASKELL ZIPERMAN

ALWAYS LATE, always waiting for the enemy to fire the first shot, drop the first bomb, wound the first casualty—this has been the history of our government at war throughout its existence. As a result, casualties in every war in which we have engaged have been produced before our organization for their reception and treatment could be placed in high gear. This has produced unnecessary morbidity and mortality early in every war. Now, with increasing emphasis on civilian defense and with the tremendous increase in interest among physicians in the management of the victims of trauma, comes an unparalleled opportunity to prepare our surgeons for the problems con-

nected with the treatment of injuries resulting not only from civilian accidents but also from combat.

We have repeatedly been faced with the recruiting necessity for training medical officers in the principles and practices of traumatic surgery incident to combat. Unlike the ancient adage of Hippocrates, "He who would be a surgeon should join the Army and follow it," few physicians in our modern age have had much experience in combat surgery, and not many have had comprehensive training in the treatment of trauma. Because of this, combat casualties produced early in each of our wars have been learning the principles and practices of combat surgery by practical experience with these casualties. Every chronological review of case fatality rates result-

Lt. Col. Ziperman is assistant director, department of professional sciences, Army Medical Service School, Fort Sam Houston, Texas.

ing from war shows a declining death rate among wounded in action concomitant with the increasing experience of the surgeons performing this work. Within certain limits, the larger the experience of the combat medical officers, the lower the final mortality rate falls. Combat casualties are generated only as a result of the effects of weapons of war on personnel and these casualties are produced only during periods of war. How then can the principles and practices of combat surgery be taught short of open warfare? The training method heretofore utilized by the Armed Forces has been a didactic one in which a surgeon with combat experience presented the subject, utilizing pictures and words. An obvious shortcoming of this method is its limited teaching value as compared with the knowledge of practices and techniques to be gained by participation in surgical procedures. Obviously, to produce participation short of actual war, one must resort to the laboratory where, under controlled conditions, any type of regional wound can be produced and then treated in a manner consistent with current surgical doctrine. Not only does the laboratory method permit the teaching of current practices, it likewise permits an expanding program of experimentation to test current doctrine and to devise new principles and practices which, with proven success, are recommended for future adoption.

Combat "laboratory"

At the Army Medical Service School, Brooke Army Medical Center, Fort Sam Houston, Texas, this concept of teaching combat surgery has been adopted. Now for the first time surgeons can be "blooded" by practicing acceptable techniques of

combat surgery on "casualties" who respond to the ministrations. Now for the first time we can modify combat surgery techniques without being engaged in a war. Here for the first time is an opportunity to experiment with many time-honored adages anent the management of battle casualties so that changes may be made, not during the chaos of war, but in the controlled atmosphere of the laboratory. Now for the first time principles and techniques of battle casualty surgery may be modified, not because of increased human morbidity and mortality, but by carefully controlled wounding experiments on laboratory animals.

Because there is a need in the Army Medical Service not only for teaching the techniques of combat surgery but for doing the teaching under field conditions which simulate those found during war, our laboratory is a reproduction of a field surgical installation from the Korean conflict. Essentially, this is a Mobile Army Surgical Hospital (MASH) in tentage, modified in such a manner that additional operating equipment may be installed to accommodate the large groups of participating officers. At least for the present, the maximum emphasis is placed on this installation being a teaching laboratory, not an experimental one. This emphasis can be changed at any time, however, or both experimentation and teaching can be carried out concurrently with only minor modifications in existing facilities and equipment. Especially important is the fact that experience with this laboratory indicates that its basic organizational concept permits large numbers of medical officers to perform wound surgery simultaneously and it thereby lends itself especially well to modification for the surgical management of mass casualties in the

event of a future war.

Equipment

The laboratory consists essentially of two parts—the wounding pit, constructed according to Army Ordnance Safety Regulations, and the Mobile Army Surgical Hospital, erected in front of stands where students may be seated to watch the demonstration which precedes the laboratory exercise (see illustration). The animal is anesthetized in or near the wounding pit, utilizing intravenous Nembutal in an anterior jugular vein, and is then strapped in a wounding frame. A target is marked on the hind leg in such a way that soft tissue wounds are produced simultaneously in both legs. The medical officers standing nearby to observe the effects of wounding then apply pressure dressings to both legs to control the bleeding while the animal is transported by litter to the demonstration table in front of the receiving section of the Mobile Army Surgical Hospital.

These medical officers are a representative cross-section of many medical schools in the United States and, as such, represent current teaching doctrine on the surgery of trauma in these various schools. Class after class of these medical officers illustrate the fact that the principles of adequate debridement have received little or no emphasis either in their medical school or postgraduate training and yet this is the single most widely used surgical procedure in the combat zone. On this basis, this applicatory method has been applied first to teaching the subject of debridement and later will be broadened to include many other practical exercises in emergency medical treatment and emergency surgery.

Because of the lack of training of

the medical officers in the basic principles and techniques of debridement, it is deemed advisable to precede the practical exercise with a demonstration by a combat surgeon. The officers are seated in the stands immediately in front of the demonstration table, where a direct view of the table is afforded them. In addition, a mirror is so arranged over the table that an indirect view of the surgical procedure is obtained by reflection. This insures that all phases of the demonstration are observable without obstruction by the operator's hands, by equipment in the vicinity, or by the head of the man ahead.

Immediately upon termination of the demonstration, the students are brought to the wounding pit to observe the effects of missiles on these animals, for it has been found that the concept of tissue destruction based on the quantity and rate of energy transmission by the missile is unknown to most of them. This, too, gives them an opportunity to practice bandaging with the Army first aid dressing for, unless pressure dressings are applied, these animals will exsanguinate while being transported to the operating section of the hospital. Amazingly enough, it is being discovered that the young doctors in these orientation classes are singularly lacking in their ability to apply splints and bandages.

In the operating section, medical officers work in groups of five per animal. These teams consist of one chief surgeon, one assistant surgeon, one scrub nurse, one table assistant and one anesthesiologist. Asepsis is practiced with regard to the hands and gloves of the operating team and the equipment and drapes utilized. The wounded area is prepared only by shaving and with merthiolate. All techniques employed are those used in a surgical hospital in

the combat zone. All work by the class is supervised and, before an experiment is terminated, the wound is surveyed by the supervisor to ascertain completeness of the procedure and adherence to the advocated techniques.

Twofold purpose

It is not our intent to make finished combat surgeons of these medical officers, who are with us for so short a time. Our purpose is twofold—to demonstrate on living animals the effects of weapons of warfare and to teach a familiarity with those principles and practices which, if well learned on a laboratory animal, may later be responsible for saving human life and limb and decreasing morbidity and mortality of casualties in a combat zone.

We find that our students are extremely grateful for the opportunity to learn the principles and techniques of what they feel is a frequently neglected and occasionally omitted field in the average medical school. They leave here now with the feeling that, having participated in one debridement, they are certainly better qualified to perform that "first one" in the combat zone. As important

perhaps is the fact that these students become aware of the actual facilities and equipment available in a field type surgical installation. The extent and quality of the surgery performed and the difficulties under which the surgeon works in the field are graphically portrayed and demonstrated.

This exercise has been utilized in the teaching of approximately three hundred medical officers to the date of this writing. It was not until the last group of 180 medical officers participated in the exercise that a new concept of its value was gained. In this last exercise the Mobile Army Surgical Hospital used as a field laboratory was modified by additional tentage and equipment so that 20 animals could be operated upon simultaneously. This demonstrated the potentialities for expansion of this or a similar type of unit and illustrated the possibilities of its utilization, with modification, as a surgical installation for the surgical care of large numbers of casualties generated simultaneously either as a result of disaster or from the detonation of a thermonuclear weapon. Its basic plan and organization has been copied by the Federal Civil Defense Administration as a prototype for the surgical management of mass casualties generated among civilians.

Un Método Para Enseñar Cirugía de Combate

La falta de práctica de los cirujanos del Ejército, en las primeras fases de una guerra, ha contribuido siempre a aumentar el número de bajas. El método de instrucción para médicos militares empleado hasta ahora en el Ejército de los Estados Unidos, ha sido puramente teórico. Un cirujano con experiencia de combate solía hablar de la materia e ilustrar ésta con proyecciones. Este método resulta poco eficaz comparado con el valor que tendría una participación activa en los procedimientos quirúrgicos empleados durante el combate mismo. Pero claro es que sólo a

través de prácticas de laboratorio podrían crearse situaciones análogas a las que ocurren en el frente de guerra. En la *Medical Service School* del Ejército americano (Brooks Army Medical Center, Fort Sam, Texas) ha sido adoptado recientemente un sistema de enseñanza basado en el concepto de "laboratorio" que permite entrenar a los médicos militares en la práctica de la cirugía del frente aplicada a "heridos" verdaderos, capaces de responder a los tratamientos. Por vez primera, la práctica quirúrgica de guerra puede ser mostrada para fines de enseñanza, sin necesidad de verdadero combate, y puede ser verificada, además, la eficacia de las técnicas terapéuticas, por medio de experi-

A Method of Teaching Combat Surgery

mentos con animales. Dicho laboratorio reproduce una instalación quirúrgica durante la guerra de Corea, uno de los llamados "MASH" (*Mobile Army Surgical Hospital*), aunque algo modificado para que cupiese un mayor equipo de operaciones y para que un mayor número de oficiales médicos pudieran allí operar simultáneamente. El laboratorio tiene dos partes: un lugar donde, con armas de guerra, son infligidas heridas a animales previamente anestesiados, y el hospital quirúrgico, a donde los "heridos" después de haber recibido tratamientos de emergencia para contener la pérdida de sangre, son transportados en camillas para que sean operados. Debido a la notoria falta de preparación de los oficiales médicos en cuanto a

los principios y técnicas elementales aplicados en la operación de heridas de guerra (especialmente en lo que se refiere al corte de los tejidos muertos o contaminados a fin de evitar infecciones de la herida), se hace que a los ejercicios prácticos preceda una demostración por un cirujano con experiencia en la guerra. El presente artículo, cuyo autor es médico del Ejército de los Estados Unidos, describe en detalle la enseñanza práctica impartida hasta ahora, en dicha Escuela, a un número de, aproximadamente, 300 oficiales médicos.

* * *

Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un mínimo de 25 lectores.

Practicing Physicians Still Loyal to Profession

A nationwide survey by *Medicine in the News* finds that: Two out of three physicians think work hours are too long; four out of five feel they have insufficient time for relaxation; more than half consider their financial returns inadequate. However, given another chance more than 85 per cent would still choose medicine as a profession. General practitioners criticized overspecialization, weakening of doctor-patient relationship, commercialization, too much control by government, insurance companies and labor unions, lack of fraternal feeling and professional jealousy. But only 13 per cent of those surveyed would abandon medicine.

Resident and Postgraduate Training in Anatomy

ERNEST LACHMAN

AT THE Teaching Institute in Anatomy and Anthropology at Swampscott with which this report is in part concerned, there were (semantically speaking) good words such as "correlation," "integration," and anatomy as a "pure science," words that were heartwarming and with a most pleasurable connotation; and, there were evil words, that caused people's blood pressure to rise. Among the latter, one of the worst seems to have been the term "applied anatomy" or anatomy as the "handmaiden" of clinical sciences.

This is a somewhat facetious presentation of an attitude that is frequently encountered toward teaching of anatomy on the postgraduate level. On the other hand a more balanced approach concedes that the teaching or its corollary, the learning of anatomy at any level, is the concern and the responsibility of the anatomist and that he should welcome the opportunity to assist wherever and whenever the moment for anatomical study arrives, whether it is in the freshman or clinical years, whether during the formal training period of the resident or as part of the postgraduate training program of the

practicing physician. The mutually fertilizing influence of work within the clinical teaching area and with practicing physicians is ever present and the anatomist can hardly afford to deprive himself of this important and productive stimulus.

Need for further studies?

A section of the very extensive questionnaire preceding the Teaching Institute tried to assess the demands for advanced anatomical instruction on the postgraduate level by canvassing graduates of 1940 and 1950, asking them to state whether they felt the need for further anatomical studies during the immediate postdoctoral years. Averaging the different specialties and including general practitioners, 83 per cent felt they had needed more instruction in anatomy. The range was from 61 per cent for pediatricians to 91 per cent for surgeons and 92 per cent for gynecologists and urologists. Seventy-two per cent of general practitioners would have wanted more instruction in anatomy. How persistent was this demand after the physicians had completed their formal training and after several years of practice had given them better insight into their educational needs and perhaps also some additional information in anatomy? The over-all demand had de-

Dr. Lachman is professor of anatomy and chairman of the department of anatomy, The University of Oklahoma School of Medicine.

This paper was given as part of a round table discussion on the teaching of gross anatomy at the 69th session of the American Association of Anatomists, Milwaukee, April 5, 1956.

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creased by only 10 per cent to 73 per cent. In other words, roughly ¾ of all physicians canvassed offered as their mature judgement that they desired further training in anatomy.

Every profession has its own anxieties and feelings of insecurity, the ones peculiar to anatomists derive from competition with and partial replacement in the curriculum by other basic sciences. Should the result of this questionnaire not relieve part of the anatomist's anxieties by making him feel wanted and needed, to use a term from the psychologist's armamentarium? Looking at it more soberly, should we not take account of this demand in the over-all planning of a postgraduate curriculum?

What has been done

It seems appropriate at this stage of our discussion to find out what has been done so far in the area of postgraduate instruction. Again the questionnaire furnishes the information, this time in answers given by the chairmen of anatomy departments.

As far as interns are concerned, 20 per cent of anatomy departments give formal courses and it seemed the consensus of anatomists at the teaching institute, that the internship was not the period for any type of basic science course since the intern's main responsibility lies in his clinical work in the hospital. By contrast the majority of departments reported that they do teach residents either by giving regular lectures (42 per cent) or regular conferences (32 per cent) or by just offering material for study (95 per cent), generally with one of the regular anatomy staff members available for laboratory instruction (86 per cent). Fifteen chairmen noted that the demand for and interest in postgraduate

courses in anatomy has increased in the last five years. Of the specialties availing themselves of postgraduate instruction in anatomy at the resident level, general surgeons lead the list with 88 per cent, with the various surgical specialties following. Only 15 per cent of the departments of pediatrics and 13 per cent of the departments of medicine received anatomical instruction for their residents.

Coming next to advanced postgraduate instruction beyond the residency level we find that approximately one-half of the departments offer it. This is done either by giving separate courses in the anatomy department or by participation of anatomists in clinical postgraduate courses in about equal proportions.

What is the subject matter of these separate courses offered by anatomy departments: Mainly gross anatomy, next neuroanatomy, then embryology and histology. Endocrinology, cytology, human reproduction, medical biometry, and x-ray anatomy are other subjects offered occasionally for practicing physicians.

Preferred methodology

Coming to the methodology of instruction on the postgraduate level we may refer again to the questionnaire to find out what method graduates preferred. Among the choices offered were formalized courses in anatomy, supervised laboratory procedures including dissection, and the supply of material and opportunity for personal study. Most favored were combined methods with the largest number wanting material and opportunity for personal study in combination with either laboratory courses or lectures. Along the same lines graduates were asked to rate teaching techniques at the postgrad-

uate level as to their relative effectiveness. Again they preferred methods which allowed them personal initiative and participation giving their highest rating to dissection; next in order came demonstrations, seminars, conferences, movies and last, but not least, lectures. Among the combinations of teaching methods the highest vote went to combinations of dissection, demonstrations, seminars and conferences. Representatives from different medical specialties did not differ significantly in their evaluation of teaching techniques.

In designing training programs on the postgraduate level we certainly will have to take account of these opinion samples, on the positive side by encouraging dissection and demonstrations for postgraduate study, and on the negative side by minimizing formal lectures.

The overwhelming majority of graduates wanted to receive their instruction in anatomy from anatomists and clinicians combined, rather than by either group alone. The question was not asked and therefore not answered whether the clinically oriented anatomist with clinical experience and training if available might not do better than a combination of anatomists and clinicians. The point was frequently raised at the teaching institute: What is needed for the postgraduate student is not only a presentation of the applications of the field, but the formulation of crystallization of basic concepts and principles which would encourage the graduate student to develop his own clinical correlations.

Resident training

Anatomists regard the teaching program for residents as the most important aspect of their postgradu-

ate activities and as a task that they do not want to relinquish to clinicians. It needs to be designed just as carefully as the freshman course, yet our experience in this field is limited at present and so is the staff, the space, and increasingly, the cadaver material. The demands are numerous and varied, in view of the number of specialties represented in the residency program, and are bound to increase. The offerings will have to be tailored to fit local needs and possibilities. Unfortunately, the large number of residents to be handled places distinct limitations on the flexibility of these courses.

Anatomists agreed that the best time for basic science training of residents is in their second year after the resident has been initiated into the clinical aspects of his field and has become aware of the need for further basic science information. Anatomists with postgraduate teaching experience were very emphatic in stating that it is absolutely necessary for the resident to have clearly designated periods of free and unencumbered time for his work in anatomy. Evening sessions are not an adequate substitute.

We all know that the best way to learn a subject is to teach it. This is the underlying philosophy in letting residents assist in anatomy for freshmen students. Almost one half of all chairmen of anatomy departments report that they are doing so, and more than 90 per cent of these stated that this worked out quite successfully, but it was agreed that the teaching assistants have to be carefully selected from the available group. They are at present most commonly utilized in the proportion of one resident to four full time staff members. In departments where there is a shortage of instructors for postgraduate work, some of the resi-

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dents might be employed as proctors and teachers of other residents, acquiring some teaching experience by their assistance in the freshman course. Interested residents might also be invited to attend lectures seminars and conferences of an advanced character that are designed for graduate students.

Among educators who have concerned themselves with graduate education on the resident level opinions differ whether it is better to expose the resident to a survey course covering each of the basic sciences or rather let him spend the whole time allotted to basic study in one department of his choice. The exposure to and the close contact with one basic field should enable him to realize the value and importance of all fundamental sciences, as they affect his specialty. To quote from one source: "This experience will stand him in good stead as the scientific common denominator to which he can reduce all of his clinical problems and on the basis of which he will begin his accurate scientific reasoning. This will make it possible for him to advance the boundaries of his specialty."

What has been the experience with residents participating in research activities of anatomy departments? Surprisingly, more than half of all anatomy departments reported that residents are referred to them as research assistants. While the majority of departmental chairmen did not regard this as a particularly burdensome task, they also did not believe that it was too successful. It was their opinion that much of the attempted research is meaningless and that there is insufficient time for the completion of a real problem. Yet, on the other hand, almost 30 per cent regarded residents as valuable research assistants, contending that a properly

organized and clearly defined problem can be brought to completion in from six months to one year. This allows the resident to acquire mental discipline and scientific methodology that his clinical work alone cannot give him.

In the discussion on teaching methods it was generally agreed that the ideally motivated resident could determine his own educational program by seeking his information from the literature and requesting only laboratory material and working space from the anatomy department. Actually, however, most residents will need guidance and assistance from the anatomist, but the initiative should come from the resident and the request for formal instruction should originate from his clinical department.

Anatomists as tutors

Anatomists were quite vociferous in rejecting special review or tutorial courses for specialty board examinations. Here, museums, wet or embedded specimens, models and teaching films are very useful, with the candidate carrying the sole responsibility for his study and the anatomy department furnishing only the material.

Additional obligations

Over-all, anatomists are far less sanguine and their opinions are more divided with reference to their obligations for formalized instruction beyond the residency level. Many anatomists feel that their responsibility ends when the resident leaves the affiliated institution. Yet, as we heard before, the demand for advanced postgraduate instruction in anatomy is almost as great as on the residency level. Nearly three fourths

of all physicians questioned stated that they wanted further training in anatomy. Even more so than the resident, the practicing physician is often too occupied and preoccupied with his clinical work to rely on self-instruction. A group of anatomists who envisage their educational tasks as a challenge at any level of instruction are willing to take account of this demand. They regard such educational efforts not only as profitable to the postgraduate student, but also as a stimulus to the instructor by awakening additional interest in clinical problems and possibly opening up new avenues of research. Such courses increase the loyalty of alumni and make for excellent public relations. They should be channeled through the postgraduate office, which should set up regular course fees. These funds can be utilized to supplement individual salaries, particularly of postgraduate instructors, or to augment departmental research budgets.

The type of course taught will vary with the demands, but whatever the method it certainly should encourage active participation on the part of the student. There is no reason why the teaching area should be restricted to gross anatomy. It might be most challenging to offer postgraduate conferences or seminars on recent advances in various specialty fields of anatomy, perhaps in conjunction with representatives from other basic science departments.

The question is often asked: how do we find or train anatomists sufficiently qualified and interested to be of real service in teaching on the clinical and postgraduate level? The answer is, that such training and interest should be encouraged by fostering graduate work and research programs in clinical anatomy and in joined projects with clinicians, by

publishing bibliographies on anatomical topics which are covered in the clinical literature, and are otherwise not available to the anatomist, perhaps by creating a journal of applied anatomy, comparable to the *Journal of Applied Physiology*, and by inviting clinicians with anatomical interests and research accomplishments as guest lecturers to our national meetings.

If one recognizes that the study of medicine continues throughout the lifetime of the physician and concedes that it is the obligation of the medical school to serve as his mentor throughout this never ending training period, the question answers itself whether anatomy departments should participate in postgraduate education. Most anatomists recognize this commitment, although the relationship for want of daring and opportunity often remains platonic. It will need some courage and encouragement on the part of everybody concerned, including medical school executives and budgeting agencies, to bring this relationship to fruitful consummation.

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La Enseñanza de la Anatomía Para Residentes de Hospital y Postgraduados

Durante las sesiones recientes del *Teaching Institute para Anatomía*, que tuvieron lugar en Swampscott, los debates sobre el papel de la Anatomía dentro de la educación médica revelaron las actitudes más extremadas entre los miembros del profesorado. Uno de los temas más discutidos fue la necesidad de estudios avanzados de Anatomía para post-

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graduados. Un cuestionario extenso, circulado antes de abrirse dichas sesiones, proporcionó una base substancial para las discusiones, revelando datos significativos: De cierto número de postgraduados de 1940 y de 1950, el 83% contestó afirmativamente a la pregunta de si habían sentido necesidad de instrucción suplementaria de Anatomía en los años inmediatamente posteriores a su doctorado. Este porcentaje variaba según las diferentes especialidades, desde el 61% de los pediatras y el 72% de los médicos de práctica general, al 91% de los cirujanos y el 92% de los ginecólogos y urólogos. Entre el grupo de graduados de 1940, que habían tenido varios años más de práctica, el porcentaje total de los que sentían dicha necesidad bajó tan solo un 10%, es decir, a 73. El autor del presente trabajo se pregunta si estas cifras elocuentes no deberían ser tomadas seriamente en cuenta por las Escuelas de Medicina al planear un *curriculum* para postgraduados; y trata, a continuación, de determinar qué es lo que se ha hecho en ese aspecto hasta ahora, haciendo uso del mencionado cuestionario. Según éste, el 20% de los Departamentos de Anatomía ofrecen cursos regulares para *internos* de Hospital, siendo la opinión de la mayoría de los que participaron en las sesiones que el período de internado no es conveniente para cualquier tipo de cursos básicos de ciencias, ya que el médico interno está absorbido por sus trabajos clínicos. Por otra parte, se determinó que el 42% de dichos Departamentos ofrecen conferencias regulares (y el 32% seminarios regulares) para los *residentes* de Hospital; el 95% ofrecían, además, material para estudios y el 86% ponían un miembro del Departamento de Anatomía a disposición de los *residentes* para la instrucción de laboratorio. Quince Jefes de Departamentos hicieron notar que la demanda e

interés en cursos de Anatomía para postgraduados había aumentado en los últimos 5 años. Entre los especialistas que estaban haciendo uso de las facilidades ofrecidas, los cirujanos estaban a la cabeza de la lista, con el 88%, pero sólo el 15% de los pediatras residentes, y el 13% de los otros Departamentos de Medicina, recibían instrucción suplementaria en Anatomía. En cuanto a postgraduados más allá de la fase de residencia de hospital, resulta que, aproximadamente, el 50% de los Departamentos de Anatomía ofrecen cursos especiales (generalmente cursillos de Anatomía general, Neuro-anatomía, Embriología e Histología y, más raras veces, Endocrinología, Reproducción humana, Biometría médica, etc.); o bien algunos anatómistas participan en los cursos clínicos para postgraduados en proporción igual a la de los miembros de otros Departamentos. En cuanto a los diferentes métodos de enseñanza, el cuestionario reveló que la mayoría de los que fueron interrogados prefieren una combinación de cursillos, trabajos de laboratorio supervisados, incluso disección, y el material y locales necesarios para emprender estudios independientes. Algunos problemas inherentes a los diferentes tipos y métodos de enseñanza anatómica para postgraduados son discutidos detalladamente en este trabajo. En cuanto al problema central, el papel de los Departamentos de Anatomía en la instrucción de los postgraduados, el autor concluye: "Si se reconoce que el estudio de la Medicina continúa durante toda la vida de un médico, y que es obligación de las Escuelas servir como Mentor durante ese incesante aprendizaje, la cuestión de si los Departamentos de Anatomía deberían o no participar en la instrucción para postgraduados, se resuelve realmente por sí misma."

Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un mínimo de 25 lectores.

Outpatient Program for Senior Medical Students

LUCIEN A. GREGG AND CAMPBELL MOSES

AMONG THE INNUMERABLE changes in medical practice in the past 25 years has been the shift away from the hospitalization of patients who present themselves with signs and symptoms that require x-ray and laboratory studies to establish an accurate diagnosis. During this period it has become increasingly possible to have all but the most complicated x-ray and laboratory examinations performed on an ambulatory, outpatient basis. Many of the larger diagnostic clinics of the country have for many years completed their "diagnostic work up" on an outpatient basis and admitted individuals to their hospital facilities only for surgical or specialized medical therapy. In private outpatient practice, particularly in urban areas, the ready availability of consultation with roentgenologists and clinical pathologists makes it unnecessary to hospitalize most patients to establish a correct diagnosis. Indeed, it is well known that today many patients have their diagnostic examinations performed while they are hospitalized only because many medical insurance plans require hospitalization to justify payment of laboratory and medical fees.

Dr. Gregg, from the department of medicine, initially sought and gained acceptance for this program from all departments. During its development he visited the outpatient departments of several Eastern schools, especially, the University of Pennsylvania. Dr. Gregg and Dr. Moses are from the Falk Clinic in the University of Pittsburgh Health Center.

However, despite the fact that in private practice patients can be carefully studied outside the hospital and the young practitioner will conduct his practice in this manner after being graduated, in many medical schools patients attending public clinics and presenting symptoms requiring specialized diagnostic studies are hospitalized to have these procedures completed. This has the obvious teaching advantage that a relatively large number of students, residents, etc. have access to these patients, the data can be obtained quickly, and the advice of many consultants is readily available. Hospital admission of ambulatory patients for diagnosis, however, is expensive in terms of the "hotel cost" of hospital beds and, perhaps more important from the viewpoint of medical education, the hospital diagnostic survey is frequently contrary to the practice the student will employ after graduation.

To make the educational experience of the senior student more closely approximate the outpatient medical practice, the University of Pittsburgh has discarded the concept of using the outpatient department solely as a "hospital dispensary" and has developed (see footnote) an outpatient program for senior students designed to give them responsibility for the complete management of patients including the initial history and

Outpatient Program for Seniors

physical examination, the necessary x-ray, laboratory and consultation examinations, and any therapeutic procedures that may be necessary. While all of the student's activities in establishing a diagnosis and providing therapy are closely supervised by the faculty, the major responsibility for the patient's welfare lies with the student and for this he is held strictly accountable during the 18 weeks (one-half the senior academic year) that he is assigned to the outpatient department. This program is just completing its first full year of operation.

Outpatient versus bedside education

In shifting a major portion of the senior students program in medicine to the outpatient department, it must be emphasized that it is not the intent to supplant the teaching of bedside medicine, but rather to complement this and to give the student an opportunity for supervised practice in a manner approximately that of the private office practitioner. Such an outpatient program inherently differs in many major ways from the experience the student obtains in his hospital work. A few of these differ importantly from hospital practice not only in the types of medical problems seen, but also in the objectives to be achieved and the proper approach to these objectives.

Probably the most important single difference in the patient presenting in the public clinic as compared to the public ward is that the clinic patient is not sufficiently ill to be confined to bed. Since he is ambulatory, the problems he presents, at that moment at least, are not overwhelming. Accordingly, patients present themselves with "early" signs and symptoms, before the "classical" findings have developed. While these problems are often ill-defined and

complex, they exactly represent the patients that come to the private practitioner, and, therefore, provide excellent student experience. Furthermore, contrary to the hospital situation, in the outpatient department the patient is not "captive" and on the slightest provocation he can discontinue attendance.

Another group of outpatients are those who have a chronic disorder which may or may not be progressive, but which requires prolonged medical care. Although, frequently, care of these patients tends to be emotionally unrewarding to the student (or practitioner!) they include the major segment of the medical care load in this country and, as such, provide the student important experience in developing skill in their management.

Patients whose illnesses stem primarily from psychosomatic and emotional problems also are seen in the outpatient department more frequently than in the hospital wards. Again, management of these patients may not be immediately satisfying to the student (or his patient), but the insight into the mechanisms responsible for the patient's symptoms and the experience gained in providing these patients with corrective or supportive therapy, it is hoped will be of real, practical value to the student in later years. Related, of course, to this group of patients are those with serious medical problems in whom the related emotional factors may be of major or paramount importance. It is hoped that with proper indoctrination, experience and example the responsibilities of the outpatient physician will become more attractive and gratifying and provide a healthy challenge to the traditional Oslerian concept of the dominance of the teaching ward in

academic medicine.

Another important difference between outpatient and hospital medical practice is that in the outpatient department only one individual performs a complete examination. This, of course, is also true in private medical practice. In the past when most patients with serious medical problems were hospitalized, during the course of their admission they were usually examined by several observers, i.e. student, intern, junior resident, senior resident and attending staff. These multiple examinations tend to reduce the significance of errors and inaccuracies of observation by any one of the examiners. In the outpatient department, with only one individual making a complete examination, it is imperative, if major errors and omissions are to be avoided, that this examination be as complete and accurate as possible. Only if this is true will the examiner be able to analyze the data intelligently, and make valid decisions about the patient's management. In the University of Pittsburgh program the responsibility placed on the senior student for this examination is great, and properly so if he is to develop into an able physician.

One of the most difficult situations for the student doctor and his faculty advisor to accept in the practice of outpatient medicine is that frequently an absolute, all inclusive "final diagnosis" cannot be established. Rarely does the ambulant clinic patient provide the opportunity for a complete autopsy review. The very fact that the patient's forces combatting the disorder from which he suffers are successful in keeping him ambulatory, means that he is several steps away from an autopsy. This inability to establish an absolute diagnosis, places considerable strain on both the student and the faculty

consultant. The delightful satisfaction of being able to produce confirmation of one's diagnosis is absent and the temptation is so to accept a diagnostic deduction as absolute fact. Outside of the outpatient clinic there are few places in medical education where it is more difficult for the faculty member to say (as he must) "I don't know for certain" or "the evidence points this way, but it could also be . . ." The integrity of the faculty in being ready to admit uncertainty must be communicated, by example, to the student so that he develops a new kind of security based upon the recognition of ambiguity, uncertainty and open choice. This does not mean that a definitive management program cannot be developed for the patient in the face of this uncertainty, but only that the course decided upon must not be held too blindly, but altered, revised, and, occasionally, abandoned as new evidence as signs or symptoms develop.

Principle policies of this outpatient program

The basic fact permitting the success of this Outpatient Medical Program is that the major responsibility of this clinic is its educational program. In contrast to most hospital dispensaries where the first responsibility is service to patients and hospital staff, in this program it is the teaching program that is paramount and all policy and operative decisions are made in the light of their effect on teaching. Obviously, in the area of medicine, good, even superlative service, must be given if an excellent educational program is operative, but the basic responsibility of the clinic is education and not service. One maxim of this program is that physicians serving in the clinic are there primarily as teachers of medicine and not as physicians to the medic-

Outpatient Program for Seniors

ally indigent. This principle has been difficult for some of the faculty to accept as they are loathe to discontinue serving as the physician to a patient they have known for years. Indeed, permitting the medical students to be identified in the patient's mind as their responsible physician, thereby minimizing to the patient the importance of the faculty member, has been so difficult for some members of the faculty to accept that a few of them will enter the clinic an hour before they are scheduled to meet with students in order that they may examine their old patients before the student sees them.

The General Medical Clinic functions in much the same fashion as does a family doctor and every effort is made to avoid the fault of fragmented care which is so often a feature of large dispensary practice. The student assigned to a new patient in the General Medical Clinic has full responsibility for that patient during the entire 18 weeks that he serves in the outpatient department. He takes a complete history, performs a physical examination and after detailed discussion with a faculty member about the patient's problems, the student is directly responsible for the patient's management including studies in each department and in all indicated specialty clinics.

The details of the operation of the specialty clinics will be presented below, but in general the specialty clinic merely provides the special consultation, diagnostic and therapeutic services that are offered by the private practice specialist. Generally, the specialty clinics do not provide long continued care, but return patients to the General Medical Clinic for this. The faculty and students use the same criteria for returning patients to the General Medi-

cal Clinic that they would use in their private offices for returning patients to a referring general practitioner. If any specialty clinic desires to follow continuously a patient or group of patients for clinical investigation, then that clinic will provide complete medical coverage so that the patient does not need to attend multiple clinics. Throughout the entire program a concerted effort is made to provide the student with an opportunity to practice what we teach.

The operation of the outpatient clinic

New patients entering the Outpatient Clinic without an appointment are first interviewed by the admission clerk to be certain the patient's income does not exceed that acceptable to the clinic. He is then interviewed by the admitting physician and normally will be seen in the General Medical Clinic that day. If the clinic schedule does not permit the patient to be examined that day, the admitting physician makes an appointment for him at the time consistent with the urgency of the patient's problems. Every effort is made to have patients have their first visit to the clinic by appointment arranged in advance by phone or letter. Although almost all patients are referred initially to the General Medical or Surgical Clinic for a complete examination, in some cases (as for example when the General Medical Clinic appointments are filled well in advance) either the admitting physician or the referring physician may indicate that the patient should be referred directly to ophthalmology, otology, dermatology or psychiatry.

All patients accepted to the clinic are medically indigent as defined by their having been referred from a

local charitable public assistance program or by having their family physician refer them to the public clinic. Despite their medical indigency, patients are expected to pay a modest fee for the services they receive at the clinic. However, patients unable to pay any part of the modest clinic fees are readily accepted; many of these have their clinic costs paid by the department of public assistance of the State of Pennsylvania. All diagnostic procedures, drugs and other therapy required by any clinic patient are provided regardless of ability to pay.

The charges for laboratory, x-ray, etc. are so designed that the clinic operation from the service standpoint is substantially self-supporting. The salaries of all full-time academic personnel and operational expenses that are properly chargeable directly to education are paid out of the teaching budgets of the Schools of the Health Professions. These individuals serve in the clinic as instructors and not as service personnel. The service to patients is rendered by the medical students under the direct supervision of both part-time volunteer and full-time paid instructors, but the instructors themselves do not directly provide patient care.

The initial patient visit

Patients receive appointments to appear at the Clinic for their initial visit between 8 and 8:30 A.M. or 12:30 P.M. Before 9 A.M. or 1 P.M. they have had a blood sample taken for serology, sedimentation rate, blood sugar, non-protein nitrogen, hemoglobin, hematocrit and a white and differential count; a urine specimen and chest x-ray and other laboratory data are available at 11 A.M. or 2:30 P.M. The student spends approximately one hour reviewing the

history, physical findings, and laboratory data with a faculty member, discussing the problems raised by the patient and determining the subsequent management. A student reports his new patients to a different faculty member every day of the week but every effort is made throughout each nine weeks of his Outpatient Clinic assignment to have the student report regularly to the same faculty member. In this way the faculty act in a tutorial capacity, considering not only the new case under discussion any one morning, but also reviewing the subsequent course of patients seen by that student and faculty member in previous weeks. There can be no doubt that this hour's discussion of each new case by the student with his faculty tutor is the crux of the educational value of this outpatient teaching program, and this hinges to a very large extent upon the teaching ability of the tutor.

At the conclusion of this initial visit the "working diagnosis" is recorded on the "Unit Index Sheet," a summary note of the findings and recommendations and a verbatim copy of any prescriptions to be supplied is recorded by the student and signed by the student and the faculty tutor. Prescriptions, likewise, must be signed by a licensed physician. At this time the patient is given any appointments that may be necessary for consultation examinations and a return visit appointment for the general medical clinic. These appointments, if at all possible, are made at times that the student is in attendance in order that he may present the patient to the specialty clinic. Additional diagnoses as they may be made by the specialty clinics, or corrections, additions, or deletions from the "working diagnosis" are

Outpatient Program for Seniors

FOURTH YEAR
36 WEEKS

INTEGRATED AMBULANT PROGRAM
18 WEEK SEMESTER

180 HALF DAYS

MEDICINE INCLUDING DERMATOLOGY RADIOLOGY & NEUROLOGY 90 HALF DAYS
PSYCHIATRY 36 HALF DAYS
SURGERY INCLUDING ORTHOPEDICS 18 HALF DAYS
OBSTETRICS 18 HALF DAYS
GYNECOLOGY 9 HALF DAYS
EYE, EAR, NOSE, THROAT 9 HALF DAYS

DEPARTMENTAL HOSPITAL PROGRAM
18 WEEK SEMESTER

MEDICINE 6 WEEKS	SURGERY ORTHOPEDICS AND EYE, EAR, NOSE, THROAT 6 WEEKS	PEDIATRICS 3 WEEKS	OBSTETRICS 2 WEEKS	GYNECOLOGY 1 WEEK
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FIGURE 1

entered on the "Unit Index Sheet" and the incorrect diagnosis lined out by the student following this patient. All return appointments to the general medical clinic are made in the afternoons in order that the students may follow their own cases throughout their clinic assignment.

The specialty clinics

For the purposes of student assignment in the outpatient clinic program, surgical service supervises not only general surgery but also the surgical specialties of orthopedics, ophthalmology, laryngology, and otology. Medical service includes not only the medical subspecialties but also dermatology, neurology and occupational medicine. In the academic hierarchy of the school these, of course, remain separate, autonomous

departments, but for purposes of the Outpatient Clinic operation, they are lumped under the more general department heading. Psychiatry, obstetrics and gynecology also operate as separately scheduled activities.

In the course of this Outpatient Clinic program each student spends 180 half days. (See Fig. 1) Of this time 90 half days are devoted to medicine, 36 to surgery, 36 to psychiatry and 18 to obstetrics. In medicine he spends 36 half days with new patients and 30 half days with return visit patients and 24 half days in the medical specialties, including dermatology, radiology and neurology. In surgery the students in the 18-week period spend nine half-days in general surgery, nine in gynecology and three half-days each in laryngology, ophthalmology, orthopedics, otology, proctology and urology.

Although it is not always possible, in general the student is able to schedule his patient's visits at a time when he can be available to present the patient in the specialty clinic. Every effort is made to facilitate this so that throughout the 18 weeks of the student's outpatient experience he is in constant touch with the individual patient. This extends even to the area of psychiatry where, under close supervision of the departmental staff, psychotherapy may be undertaken by the student. To facilitate the integration of psychiatry into the clinical problems presented in the outpatient department, a staff psychiatrist is available in the medical clinic at all sessions to review the students' case workups. This staff psychiatrist does not confine his activity to patients with primarily emotional problems, but participates in the review of any patient presented. Indeed, one of the most effective practical demonstrations noted in the clinic program is the easy facility with which the medical and psychiatric staff personnel consult one another in defining a patient's problem and the optimum course of therapy.

Conference sessions

At the conclusion of each clinic day the students gather for a general case discussion conference. Three afternoons each week the entire student outpatient group meets jointly; two afternoons each week a portion of this group attends a psychosomatic interview and the remainder a medical case discussion. During these conference sessions a systematic attempt is made to present patients with problems in the areas of allergy, arthritis, cancer, cardiology, gastroenterology, hematology, metabolism and endocrinology, nutrition, neu-

rology, peripheral vascular and pulmonary disease. These sessions are conducted in informal fashion by the chief of the specialty clinic and include a large amount of student participation. During these late afternoon conferences a few sessions are also devoted to the specific areas of occupational rehabilitation, the scope and availability of community resources, vocational and pastoral counseling and medical ethics. Throughout these conferences every effort is made to avoid a didactic lecture and to tie the topic under discussion to a particular problem or patient that has been seen in the clinic that day.

Summary

The outpatient program for senior medical students at the University of Pittsburgh is outlined. Some of the differences between bedside and outpatient teaching are described as are the policies currently employed in carrying out this program. Quantitation of the value of an outpatient teaching program as here described as compared to more conventional programs has not yet been satisfactorily established. However, the obvious similarities between this program and the office practice of medicine indicates that this may be a reasonable step in improving our program of medical education.

Un Nuevo Programa de práctica, Para Estudiantes de Último Año, en el Tratamiento de Pacientes No Hospitalizados

Uno de los muchos cambios que la práctica médica ha sufrido en los últimos 25 años, ha sido la tendencia a tratar pacientes, a los cuales es necesario hacer radiografías y análisis de laboratorio, para fines diagnósticos, sin recurrir a una hospitalización. Muchas de las grandes clínicas diagnósticas de este país están capacitadas para llevar a cabo casi todos los análisis médicos, y se interna a los pa-

Outpatient Program for Seniors

cientes sólo en casos en que se requiere una cirugía o terapia muy especializadas (de hecho, hoy día, si muchas personas acuden a la hospitalización, mientras se llevan a cabo los análisis, ello es tan solo porque la mayoría de las compañías de seguros no pagan si no hay hospitalización). Por otra parte, muchas Escuelas de Medicina suelen, en los casos descritos, internar a los pacientes en sus hospitales para fines de enseñanza, lo cual tiene ventajas evidentes para los estudiantes; pero, aparte de los considerables gastos que esto ocasiona innecesariamente, ese modo de práctica no corresponde, por lo que acabamos de decir, a la situación real con la cual los estudiantes habrán de enfrentarse después de terminar su carrera. Por ello, la Escuela de Medicina de la Universidad de Pittsburgh ha desarrollado recientemente un programa para los estudiantes de último año el cual les da oportunidad de prepararse mejor para su práctica futura: Durante un período de 18 semanas (o sea la mitad de su último año académico), los estudiantes asumen la responsabilidad (bajo estricta supervisión por miembros de la Facultad) por el tratamiento completo de los pacientes externos del Hospital universitario, lo cual incluye historiales, reconocimientos físicos,

radiografías, análisis de laboratorio y todos los procedimientos terapéuticos que hayan sido necesarios. En el presente artículo, los doctores Lucien A. Gregg y Campbell Moses, de la *Falk Clinic* (del Centro Médico de la Universidad de Pittsburgh) describen detalladamente cómo funciona el nuevo programa, discuten sobre el valor de enseñanza que pueda tener y destacan las diferencias entre ese nuevo método aplicado a los pacientes externos y los empleados con los pacientes hospitalizados, aunque se advierte que, debido a que el programa está funcionando sólo desde hace un año, aun no ha sido posible llevar a cabo un estudio completo del valor de la nueva enseñanza, comparada con métodos más convencionales. Se llega, sin embargo, a la conclusión de que, debido a obvias similitudes entre dicho programa y el tipo de práctica médica con que los estudiantes de último año habrán de enfrentarse pronto, se puede considerar éste como un paso importante en el mejoramiento de la educación médica.

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Separates de este artículo en español, podrán obtenerse si son solicitadas por un mínimo de 25 lectores.

Medical Education in 19th Century Great Britain

WILLIAM B. WALKER

Speaking with the restraint suitable for an Englishman, James Copeland, M.D., testified before a Select Committee of the House of Commons in 1824 that ". . . the separation of the profession into physicians, surgeons, and apothecaries is injurious . . ."¹ His statement was amply justified; at the time the United Kingdom boasted no less than nine corporations, each claiming to represent one of the branches of medicine, and whose mutual jealousy over prerogatives often led them to regard traditional practices—apart from their merits—as a vested interest.

Several of these bodies derived prestige from the respect which an Englishman customarily attaches to an institution of ancient lineage. The oldest corporation was the Royal College of Physicians of London, founded in 1518 by Henry VIII. Nearly 100 years later (1617) the Apothecaries' Society of London was granted a royal charter. By the end of the century the Faculty of Physicians and Surgeons of Glasgow, the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the King and Queen's College of Physicians in Ireland had been established. During the 1700's the Royal College of Surgeons in Ireland, the Apothecaries' Hall of Ireland, and the Royal College of Surgeons of London were organized.

Dr. Walker is a lecturer on the History of Medicine, Yale University School of Medicine, New Haven, Conn.

All of these bodies had autonomous authority over the licensing of their prospective adherents. This implied virtual control over training for professional practice, and left each group free to prescribe its own standard.^{2, 3}

Inherent evils

The evils inherent in such a situation were well exemplified in the activities of the Royal College of Surgeons. For many years the surgeons had labored under an inferior status; for two centuries, from 1545 to 1745, they had been affiliated with the barbers in a common guild, denied the title of doctor, and identified in the public eye—often justifiably—with a crude and unlettered craft. Not until the mid-18th century did they win independent status; in the intervening years their prestige was greatly enhanced by the work of men such as Pott and John Hunter. Shortly after the latter's death, in 1799, they were incorporated by royal charter. Since recognition of their professional standing had been so long delayed, the surgeons guarded their prerogatives with evident zeal. Chief agent of the College was the council, whose 21 members were each appointed for life. Typical of the regulations which they issued were those stipulating five years study: two courses of lectures each in anatomy and dissection, one course of lectures in surgery, to be taken only at London, Edinburgh, Glasgow or Dub-

lin, and a year of practice in one of the following hospitals—St. Bartholomew's, St. Thomas's, or Guy's (London), the Royal Infirmary (Edinburgh), the Royal Infirmary (Glasgow), or Richmond's or Steven's (Dublin). Since at this time virtually all training was carried out from preceptor to apprentice, such regulations assured that the greater part of such teaching would be reserved for members of the College. Likewise, the concomitant financial arrangements would provide a perpetuating income for the councillors and their associates.³

Even this program might have held its own against serious criticism, had the standards of instruction been consistently adequate. On the other hand, revenue and prestige seemed as highly sought as the training of surgeons. Sir David Barry, a Londoner who had spent some years training in the hospitals of Paris during the 1820's was subsequently required to pass an examination at the Royal College of Surgeons prior to undertaking practice in his native city. He later testified before a legislative committee that this examination lasted no more than 15 to 20 minutes, that ". . . chemistry is always omitted, midwifery, I believe, is never touched upon . . ." and that he was not required to make any practical demonstrations.⁴ He might have added that both he and his examiners spoke only in Latin, a practice which an official of the college later justified as ". . . a very excellent test . . . of proficiency . . ."⁵ but which may have been more accurately described as a means to ". . . conceal from the examiner the real state of the knowledge of the person examined . . .".⁶

Peculiarities of this nature were not limited to the corporations. By 1800 several universities, among them Oxford, Cambridge, Edinburgh,

Glasgow, St. Andrew's, Aberdeen, and Dublin, also graduated candidates in medicine. This degree was a passport to practice, except in those urban areas where the rights of corporations were paramount.⁷ On occasion this served to give the inferior candidate yet another chance: in Edinburgh, for example, if a man failed the examination for the diploma of the Royal College of Surgeons of that city, he could buy an M.D. at either St. Andrew's or Aberdeen for approximately £5!⁸ With this in hand, our adventuresome student could legitimately claim admission to Collegiate licensure, despite the fact that he had already failed their examination! Finally, having secured this diploma, he could in turn apply to the Royal College of Surgeons of London to pass before their examining council.⁹ As for Cambridge at this period, a candidate later testified that the principal requirement for his graduation was the translation of some classical authors, and the preparation of a thesis.

Private schools

A further confusing element was the existence of private schools, which were without affiliation, and proprietary in their complete reliance on student fees. Such institutions were the lineal descendants of a series of private lectures, such as those given by William Smellie on obstetrics in London during the mid-1700s. Some, in turn, were the direct forerunners of 19th century schools: the private school of William Blizard, for instance, was subsequently absorbed into the medical faculty of the London Hospital. The most distinguished unit was associated with the name of William Hunter. A Scotsmen who practiced in London, he initiated private lectures on surgery

(1746), whose success was such that he was ultimately able to acquire an anatomical theatre and museum on Great Windmill Street. Here he founded his own private school (1768), where he helped to train not only his famous brother John, but also many other leading practitioners of the next generation.¹⁹

The majority of these facts notwithstanding, Britain was making some contribution to the progress of medical education. During the 18th century there had been a noteworthy increase in the number of hospitals, particularly in London; to the older established institutions, St. Bartholomew's and St. Thomas's, had been added Guy's (1723), the London (1740), and the Middlesex (1745). In the "provinces," Bristol had established a Royal Infirmary (1735), while the Edinburgh hospital and the Meath hospital in Dublin were also founded by mid-century. In addition to the care of the sick, these centers soon gave promise of participation in medical training. Among the first to offer a series of private lectures to students under hospital auspices was the surgeon William Cheselden, at St. Thomas's (ca. 1720). He was followed shortly by Percival Pott at St. Bartholomew's (ca. 1734). These meetings were devoted principally to surgery and surgical anatomy; it was not until the 1790s, when Thomas Abernethy instituted his lectures at St. Bartholomew's, that additional subjects such as physiology and chemistry were added.²⁰ Of greater significance was the appearance of the dresser, who ". . attended to all the accidents and cases . . which came in during his week of office, . . dressed . . outpatients, . . and performed countless venesections . . ." as well as accompanying the surgeon on his visits to ". . both the male and female wards . . ."²¹ Thus was inaugu-

rated the policy of extending a degree of responsibility to the student-apprentice, a feature which was to become permanently incorporated in the hospital-affiliated medical schools of the next century.

Among the universities, a medical faculty had been founded at Edinburgh (ca. 1705), where owing to the influence of teaching methods emanating from the University of Leyden in Holland, somewhat higher standards prevailed. As of 1750 recognized subjects included anatomy, botany, natural history (in a sense the forerunner of modern physics), chemistry, *materia medica*, institutes of medicine, practice of physic, and midwifery. The candidate for an M.D. degree must have devoted three years to medical studies, of which one was to be passed at Edinburgh. While in residence he was required to attend lectures in all subjects offered, to complete a thesis and to pass a series of examinations. These were administered orally, in Latin, at the home of one of the professors, and subject to his discretion were related to the subjects of the course, a translation of classical medical authors, and a defense of the thesis. The school soon acquired an outstanding reputation, which helped to attract many gifted candidates from the American colonies.

France as leader

Nonetheless the over-all state of medical education in the British Isles in the early 19th century could not bear comparison with France, which then occupied a leading position in this field. James Copeland highlighted this in remarking of British surgeons ". . . that their examination, and the privilege of practice conferred in them, is strictly surgical, while at the same time nine-tenths of

that practice is purely medical . . . Such incongruities could be remedied, he felt, only by ensuring ". . . that the physician and surgeon should be educated alike, as on the continent, and . . (each) . . having received the same preliminary and the same professional education, . . to then take up . . his specialty . .".¹³ British practitioners who had studied in Paris continually referred to the more uniform standards which prevailed in French teaching. They pointed out, also, the advantage of requiring candidates to give practical demonstrations as part of their examination, and the incentive provided by allowing the more talented students to ". . . become eligible to places . . in the hospitals of Paris, and in the school of medicine . .", from among whom ". . the prosector, the aides d'anatomie, and the internal pupils of the hospital are selected . .".

The significance of this laggard state of affairs became a public question only by degrees. Since the more progressive medical men were most intimately concerned, the first concerted effort at improvement was precipitated by the repeated arbitrary actions of the Royal College of Surgeons of London. In the spirit of former efforts, the council continued to issue directives which restricted the scope of the preparation of candidates; in 1824 this was climaxed by a resolution stating that certificates in ". . anatomy, physiology, the theory and practice of surgery, and the performance of dissections . ." would be accepted only from graduates of the universities of Dublin, Edinburgh, Glasgow and Aberdeen, from pupils of teachers in those hospitals of which the council approved, or from physicians or surgeons attached to these hospitals.

To this bald assertion of privilege three young figures now arose in op-

position. Thomas Wakley, a London doctor, had recently (1823) inaugurated a journal under his own editorship, the *Lancet*, dedicated to exposing this and similar abuses. On this initial issue he was ably abetted by a physician-contributor, James Wardrop, whose polemics attracted attention. Simultaneously a layman, Henry Warburton, gave his support to medical reform in parliament, where he entered a petition asking for the revocation of the charter of the college. Though this measure failed, the accompanying debate resulted in the appointment of a Committee under Warburton's chairmanship to ". . inquire into the study of anatomy as practised in the United Kingdom, and into the best method of obtaining bodies for dissection. .".¹⁴

This phrasing carried wide implications, for anatomical studies constituted the major portion of contemporary medical instruction. Most of the proprietary institutes were private schools of anatomy. The hospital lectures by leading surgeons were also preponderantly devoted to this subject. Hence the work of the committee soon became the starting point for an investigation of the entire scope of medical education. For the time being, however, the problems of anatomical teaching received prime consideration. It was abundantly evident that the facilities extant in Britain had failed to keep pace with the advance in anatomical knowledge which had occurred since the publication of Vesalius' *Fabrika* in 1543. Indeed some provisions had scarcely changed since that time!

Criminals' bodies

A tradition of making dissections from the bodies of executed criminals had come with time to be gravely injurious to medical teaching. The practice suffered in public esteem

through close identity with the punishment of condemned criminals. Far worse was the rigid limitation of material; as the interest in anatomical teaching increased, it gradually became evident that only illegal means could be used to procure the additional needed cadavers. Such was the genesis of the 'resurrection men', who performed this office by the surreptitious robbing of graveyards. In the early 19th century this abuse assumed monstrous proportions. As the acquisition of bodies became increasingly difficult by 'natural' means, it was not long before unscrupulous 'resurrectionists' turned to murder as an alternative. Two of the most sensational cases of this nature came to light at the time of the Committee's investigation, thus focussing public attention on the problem and arousing support for remedial legislation.¹⁶

Despite these fortuitous advantages, Warburton encountered resistance and delay. Though his committee had been constituted some four years earlier, it was unable to take up its duties before the parliamentary session of 1828. Witnesses at the hearings included some of the leading medical personalities of the time. Though the testimony supported reform, Warburton was forced to introduce a bill at several successive sessions before the desired legislation was enacted. The Anatomy Act of 1832, as it came to be known, empowered the Home Secretary to "... grant licenses to practise anatomy to any member of the Royal College of Surgeons or Physicians, or to any graduates or licentiates in medicine, or to any professor of anatomy, the application for such license being countersigned by two justices of the peace; and persons so licensed may receive . . . or examine anatomically . . . any dead body . . ." An important

secondary provision allowed a person to state before death that he wished his body dissected, and also stipulated that this wish should be honored unless a known relative raised a formal objection. Furthermore, by abolishing the practice of sentencing murderers to have their bodies dissected, the law helped free anatomical study from a heavy incubus.¹⁷ The *raison d'être* for the practice of 'resurrection' was all but obliterated, and since a greater number of teaching centers could share in anatomical material without raising their fees, the proprietary schools dwindled in numbers and eventually disappeared. Hence the act brought the first vestiges of organization and regulation to the training of future practitioners, and effected an initial step toward building the dignity of the medical profession.

Reform bill and B.M.A.

It was more than coincidental that the year 1832 also marked the passage of the Reform Bill, and the parliamentary battle on that occasion was paralleled in a minor key by the efforts attendant on the enactment of Warburton's Anatomy Act. To a large extent this and all subsequent efforts at reorganization of medical education shared the same spirit of reform which left its mark on all phases of English life during the ensuing years. For example, progressive spirits among medical men now recognized the need for even more closely concerted action, with the result that 1832 also recorded the founding of the British Medical Association. This group, in common with its future counterpart in the United States, took an immediate interest in problems of professional training. Members were soon urging the formation of another select parliamentary committee, this

time to openly review medical education. Constituted at the session of 1834, with Henry Warburton once more in the chair, this group consumed the entire sitting in hearing voluminous evidence relating to conditions throughout Great Britain. That portion pertaining to England was printed and published, the data for Scotland and Ireland being reserved for the following year. On this occasion, however, the committee was not reconstituted, and these latter sections went unrecorded, together with a contemplated report which might well have embodied drastic recommendations.

Dismayed at the prospect that this cause might languish, the B.M.A. formed a reform committee from among its own membership in 1837. This group urged the adoption of a nationwide register of all those entitled to practice, a thorough preliminary examination at the beginning of the medical course, a uniform standard of licensure, reciprocity of practice, and a supreme supervisory body for the medical profession, to be composed—at least in part—of representatives chosen from practitioners. Once more Henry Warburton attempted to further these aims in parliament, only to meet with no success. A bill which he introduced with the co-sponsorship of Wakely at the session of 1840 simply failed¹⁹; moreover, during the ensuing years attention was increasingly drawn to the prospect of sanitary reform. This movement profited from the interest attendant on the changes in the Poor Law, and on the publication, under the editorship of Edwin Chadwick, of the *Report on the Sanitary Condition of the Labouring Population of Great Britain* (1842).²⁰ At the same time, hope for legislation to improve medical education seemed to fade.

Some Improvement

Nonetheless, even a modicum of public interest stimulated some spontaneous improvement in medical teaching. Some years before, in 1828, the tireless Warburton, in association with Brougham and Thomas Campbell, had organized University College in London for the particular benefit of nonconformists. A medical faculty was also formed; subsequently the institution received a royal charter as the University of London (1834). Shortly thereafter the parent body was subdivided to include King's College as well as University College on an equal basis; in each case the medical faculty was further developed through the addition of an affiliated hospital.²¹ This example was soon emulated by other metropolitan hospitals: at mid-century similar medical schools had been established at St. Bartholomew's, St. Thomas's, the London, the Middlesex, and above all at Guy's, where flourished a succession of outstanding clinical teachers. The curriculum embraced the subjects enumerated at Edinburgh during the preceding century, but with greater emphasis on hospital training in which all students functioned as 'dressers,' and more reliance was placed on practical questions in the examination.

Simultaneously, some of the older universities began to show improvement. At Edinburgh, the length of the medical course was extended to four years. In addition, the prevailing system of private oral examinations in Latin was replaced by a series of two tests in English, which were held publicly at times corresponding roughly to the completion of the pre-clinical and clinical phases of the curriculum.²² In Dublin, the faculty

benefited from the presence of Graves and Stokes, whose views were reflected in a progressive strengthening of the curricular requirements. After 1840 all candidates for the M.B. degree were to be graduates in arts, to study four years, and to undergo public oral and written examinations in English. To qualify further for the M.D., the candidate must have shown at least three successful years' work for the M.B., as well as the preparation of a thesis.²³ Even at Cambridge, where syllogism had so recently been avowed, a candidate later testified that he believed ". . . the present professor . . . has improved the thing exceedingly, and now there is a most respectable examination . . ."²⁴ In the same vein a spokesman for the Royal College of Surgeons of London conceded that ". . . in their new arrangements . . ." the college had allowed ". . . papers in English . . ."²⁵

Medicine Act of 1858

During the 1840s and early 1850s sanitation had continued to hold parliamentary interest in the medical field. What Chadwick's energy had accomplished in the formation of the General Board of Health (1848), his controversial personality helped to undo some six years later.²⁶ Following the demise of "the Board" in 1854, efforts were once more undertaken to reintroduce bills for the regulation of medical education. Under the sponsorship of Hedlam measures were debated during the sessions of 1855 and 1856, but without positive action; after a gap of a year the matter was again taken up, and a statute finally enacted.

The cause of the delay was persistent differences of opinion over the nature and strength of the regulatory provisions. The bills of 1855-56, in common with Warburton's earlier

effort in 1840, and the draft originally drawn for 1858, had created a medical council composed more or less equally of delegates from the corporations and selected universities, and elected representatives from the profession at large. This body was to have power to make recommendations regarding the standards of medical education throughout the United Kingdom, and these were then to be confirmed by the Privy Council.²⁷ Such provisions were resisted by the corporations, who saw their representatives outvoted in deliberations, with the result that the council might seriously abridge their privileges. In consequence these provisions were altered so that the elected representatives were replaced by a small number appointed by the crown, and the powers of the council reduced to the mere right of 'advising' the Privy Council of alleged failure to maintain adequate standards.²⁸

Hence the Medical Act of 1858, as it came to be known, realized but a fraction of the aims outlined by the committee of the B.M.A. many years before. A license which would guarantee reciprocity of practice was obtained, yet the regulatory provisions remained weak. Nonetheless, the council lost no time in signalling its determination to investigate whether ". . . the course of study and examinations . . . (for) . . . the diploma of Doctor . . . (or) . . . Licentiate . . . are such as to secure the possession of the requisite knowledge and skill for the efficient practice of the Profession of Medicine . . ."²⁹ Gratifying to progressive physicians also was the announced intention to compile and publish ". . . a register of every person in the United Kingdom who was . . . supposed to be qualified to practice . . ."³⁰ This task, and a subsidiary objective—the compilation

of a standard pharmacopoeia—were accomplished in reasonable time, but the process of investigation moved slowly. The council was hampered by lack of a properly functioning staff, and the project of personal observation of the mode of examinations at the various teaching centers was inevitably time consuming.

Coincidentally the work of the council was interrupted—this time from within the ranks—by renewed controversy over powers and functions. Dissatisfaction centered around the matter of multiple licensure. The Act of 1858 had done little to resolve this problem. The number of responsible bodies had indeed been clearly specified, but no less than 19 of these were officially constituted. In addition to the nine corporations, 10 universities—Oxford, Cambridge, Durham, and London in England, Edinburgh, Glasgow, St. Andrew's and Aberdeen in Scotland, and Trinity and Queen's in Ireland—were also accredited. Dissidents within the council formed an education committee, whose principal objective was to amend the Act to substitute three 'conjoint' licensing boards, one in each kingdom, for the existing units. Simultaneously discussion was also revived as to the merits of direct representation of the practising profession.³¹

The renewed prospect of the loss of cherished privileges provoked further resistance from the delegates of the corporations. In addition, some representatives of the Scotch and Irish universities opposed the transfer of licensure to an 'independent' board. The question was argued back and forth for the greater part of 20 years. On the one hand it was claimed that the prevailing system did not encourage a thorough examination of the candidate in all branches of practice. It was not sufficient to pass a

qualifying examination in medicine without demonstrating a similar satisfactory knowledge of surgery. On the other hand it was thought equally inadequate to establish qualification at a licensing board as the sole criterion of licensure. Failure to recognize antecedent training, it was stated, might well discourage university attendance in medicine.³²

In the end little was accomplished. At the 1870 session of Parliament an amending bill was introduced which passed the Lords, but failed in the Commons owing, it was said, to the expiration of the sitting. Another bill was not presented until 1878, when lengthy hearings were held. Testimony was often divided. As a result the proposed legislation contained compromises: the question of elected delegates was dropped, and the qualifications for licensure at the 'conjoint' board were made subsequent to and dependent on a satisfactory association with one of the universities or corporations. At the same time it was also explicitly stated that in the qualifying test ". . . a consolidated authority shall examine all round . . ."³³ With the opposition of some parties thus appeased, it was a matter of some surprise when this bill also failed. On the other hand, the hearings had produced considerable evidence of the work of the council in reviewing conditions in Great Britain, and prompted publication of their long-awaited report.

To demonstrate the use of a medical register, the council advised that ". . . no medical student shall be registered until he has passed a Preliminary Examination . . . and has produced evidence that he has commenced medical study . . ." ". . . The age of twenty-one . . ." was suggested as ". . . the earliest . . . at which a candidate shall obtain a license to prac-

tic . . . Furthermore, to ensure a ". . course of professional study . ." which should ". . occupy at least four years . . .", the council minuted that no candidate should be admitted ". . to the Final Examination for Qualification under the medical acts . ." unless his name had ". . been entered in the Medical Students Register at least forty-five months previously . . .", and that no license be obtained before ". . forty-five months subsequent to the registration of the candidate as a medical student . ."³⁴

Minimum standards

A minimum standard for preliminary and professional training was specified. Licensing and university boards were urged not to accept ". . the Certificate of Proficiency . ." from matriculating candidates unless they showed evidence of having passed examinations in ". . English language . . arithmetic . . algebra . . geometry . . Latin . ." and one from among ". . Greek, French, German, . . and the Elementary Mechanics of Solids and Fluids . .". Subjects deemed essential to the medical course were also enumerated.

As for examinations, the council observed that ". . the different licensing bodies . . should frame their examinations . ." so that the candidate should be tested ". . in all the subjects which the council has deemed to be essential . . .". This should be done in at least two stages: ". . the first division to . . include . . chemistry and chemical physics, anatomy, physiology, *materia medica* and *pharmacy*, . . (which) . . may be completed at or before the second year of study . . .", while ". . the second division shall include . . pathology . . medicine . . surgery . . midwifery . . forensic medicine, . . and may not . . " be completed ". . till two years after

the passing of the second division . . .". The council further recommended ". . that the professional examinations be conducted both in writing and orally, . . and that not less than two examiners shall take part . ." emphasizing that ". . excellence in one or more subjects should not be allowed to compensate for failure in others . . .". Moreover, all examinations ". . should be held at stated periods, to be publicly notified . . .", and ". . full returns should be made annually . . ."³⁵

The council was to receive only meagre rewards in the wake of publication of this report. An amending bill—to the Medical Act—which finally passed Parliament in 1886 contained but two important provisions. On the one hand a triple qualification for licensure was required, specifying medicine, surgery and midwifery. At the same time the council was empowered to secure ". . the maintenance of a sufficient standard of proficiency . ." at the proceedings of the qualifying bodies, and given funds to hire inspectors to oversee and report on this function.³⁶

The universities, for their part, had increasingly anticipated the published recommendations by self-instituted improvements, and candidates matriculating henceforth could look forward to far more thorough training than their predecessors of the previous generation. Thus the former three-year course was initially lengthened to four and then extended to five years by the requirement of a term of internship after graduation. Improvement was particularly evident in clinical teaching in the hospital-medical schools; these institutions, adapted from European examples as in Paris or Vienna, had been widely developed under British auspices. Taking as a model the 'dresser' of the 18th century, who had

"walked the wards" as an apprentice of the surgeon, the practice of clinical clerkships was conceived, whereby the student spent most of the last two years of his professional training in the hospital. The tradition of delegated responsibility which he inherited was no longer limited to surgical cases, but included work in medicine and obstetrics as well. Exercise in the new techniques of the clinical laboratory was added to the more familiar tasks of history-taking and the practice of minor medicine and surgery.³⁸

During the 1890s further modest advances toward more uniform standards were made without benefit of legislation. In each of the three kingdoms a 'conjoint board' was created by the fusion of the licensing privileges of the corporations of physicians and surgeons concerned. This served to isolate the societies of apothecaries and in a very short time their independent examinations had been discontinued. The ultimate effect, therefore, was to reduce the corporate licensing bodies from nine to three. As a counter to this, however, the independent licensing authority reserved by the Act of 1858 to 10 privileged universities still remained in force, and the proliferation of other institutions created an additional problem. At the turn of the century, because of the increase in centers outside of London, the census of these in England alone had risen to 22. Together with similar bodies in Scotland and Ireland, many of these possessed medical faculties with hospital affiliation, and wished to present their own degrees as equivalents of licensure. Recognition of these was delayed; in the interim the medical council implemented its recent directive to qualify a school according to a minimum standard, and graduates of these

could matriculate before the board of the University of London which was specially empowered to examine such applicants.³⁹

Century ends

Thus the 19th century ended on a mixed note; uniform standards in medical education had not been fully attained, although the trend had moved far in that direction. More success had followed the attempt to determine the preparation and training of the student, than in reducing the multiple authority which characterized licensing methods. Such a brief summation should help to indicate the two main themes which pervade the history of medical education in Britain during this period. On the one hand, the progress of reform is continually resisted—to some extent successfully—by vested interests represented in the extant system of licensure. The antagonism of these two forces was exacerbated by the tendency of political authority to adhere to "laissez faire," which was then a dominant motif in all walks of life. The reverence for tradition inherent in the British national character also bolstered resistance to change. On the other hand, more progress was made in developing a practical medical curriculum. The strengthening of clinical studies, and the improvement of facilities for clinical teaching was particularly marked. In this instance tradition—as personified by the 'dresser'—favored these developments. Furthermore, such trends appealed to the empirical and 'common-sense' instincts which were powerful in both intellectual and every-day life at that time.

These influences also combined to produce a characteristic attitude among many medical teachers. Sir

James Paget, one of England's leading practitioners during the later 19th century, epitomized this when he remarked: ". . I feel sure that clinical science . . affords . . the safe and best means of increasing the knowledge of diseases and their treatment. Let us still hold that within our range of study, that alone is true which is proved clinically, and that which is clinically proved needs no other evidence . .".⁴⁰ This claim reflected an appreciation of the values stemming from direct contact between teacher, student, and patient, as well as the benefits provided by individual leadership and inspiration among small groups, and the retention of learning habits other than those derived from lecture and laboratory demonstration. In a sense he revealed, however, how over-emphasis on the value of clinical techniques had created a trend toward empirical teaching, which was steadily divorcing the student from the scientific base which underlay medical practice. This separation was enhanced by the fact that clinical teachers for the most part were busy practitioners and consultants, scarcely able to give adequate time to their students or to the developing theoretical background of their own subjects.⁴¹

In a slightly different but equally significant manner, British 19th century experience was to exert influence on the future development of medical education in the United States. When the Johns Hopkins Medical School and Hospital were established in the 1880s and 1890s, it was generally recognized that the organization of the German universities had been largely followed. This allowed the development of fully-differentiated and well-staffed pre-clinical departments, on the pattern

of the autonomous German 'institutes.' In the clinical fields, however, closer inspection revealed that there was more evidence of British practice. Provision was made for clinical clerkships, with increasing delegation of responsibility to the advancing student, and for close cooperation between the ward and the laboratory. This initial plan had some healthy advantages. The presence of a strong theoretical component in the curriculum helped to prevent a tendency toward empiricism associated with British teaching, while the incorporation of student responsibility and of close association with patients supplied an element which may have been underemphasized in the German system. To be sure, the problem of divided allegiance between the busy, practitioner and the clinical teachers remained; yet it was of value in provoking the concept of 'full-time' positions for the heads of these departments, which was among the boldest, and most controversial, steps in the reorganization of medical education in America. Furthermore, British difficulties in achieving uniformity of standards helped to stimulate the Committee on Medical Education of the A.M.A. to promote a drive, ably abetted by the famous report of Abraham Flexner (1910), to pattern medical schools generally on the Johns Hopkins model.⁴²

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La Educación Médica en la Gran Bretaña del Siglo XIX

En 1824, James Copeland, un médico inglés, testificó ante un Comité del Parlamento que "la separación de la profesión en médicos, cirujanos y farmacéuticos es perjudicial." En aquella época, la Gran Bretaña tenía no menos de 9 Corporaciones, cada una de las cuales pretendía representar un ramo de la Medicina, y que rivalizaban unas con otras. La lucha por mantener sus prerrogativas les hacía considerar las prácticas tradicionales, independientemente de sus méritos, como intereses creados. Además, varias de estas Corporaciones médicas derivaban su prestigio, principalmente, de la veneración que los ingleses suelen sentir por las instituciones antiguas (la más antigua de ellas, el *Royal College of Physicians*, de Londres, fué fun-

dada en 1518 por Enrique VIII). Todas las Corporaciones médicas tenían completa autonomía en cuanto a la concesión de licencias y en cuanto al *curriculum* de sus estudiantes, y de hecho cada una era libre de establecer sus propias normas en la educación médica, lo cual contribuyó grandemente a mantener ésta a un nivel muy bajo, comparado con el de otros países en la misma época, especialmente Francia. En las Universidades que tenían Facultad de Medicina, prevalecía una situación parecida. Hacia 1800, el título que concedían las Universidades de Oxford, Cambridge, Edinburgh, Glasgow, St. Andrews, Aberdeen, Dublin, etc., daba plenos derechos a practicar la Medicina, excepto en ciertas áreas urbanas donde las Corporaciones médicas poseían una especie de monopolio. Pero hubo casos en que un estudiante que había

fracasado en sus exámenes para el diploma del Royal College of Surgeons, de Edinburgh, pudo comprar el título de M.D. de la Universidad de Aberdeen, o de St. Andrews, por la suma de j 5 libras! En Cambridge, hacia la misma época, un candidato testificó que el requisito principal para adquirir el título era la traducción de algunos autores clásicos y la preparación de una tesis. No había otros exámenes. Otro elemento de confusión fué la existencia de Escuelas privadas, que dependían enteramente de las cuotas pagadas por los estudiantes, y cuyo nivel, por lo general, era tan bajo como el de las Universidades, aunque más tarde algunas de ellas lograran adquirir gran prestigio. La Anatomía era aun parte principal de la instrucción médica, y aunque Inglaterra hizo, desde principios del siglo XIX, algunas contribuciones al progreso de la ciencia médica (sobre todo en lo que se refiere al incremento

de los hospitales), el nivel de los estudios de Anatomía, así como de la Medicina en general, eran tan bajo, comparado con el de otros países, que la opinión pública despertó y se formaron Comités parlamentarios y cívicos de investigación, los cuales fueron apoyados por una intensa campaña de prensa. En el presente estudio se describe, paso a paso, con detalles de mucho interés para el estudio de la Historia de la Medicina, la evolución de la Educación Médica que tuvo lugar en la Gran Bretaña, sobre todo en la segunda mitad del siglo XIX; evolución que trajo consigo cambios radicales, aunque lentos, que no solamente elevaron la Medicina y la Educación Médica a un nivel igual al de otros países sino que influyeron de modo significativo en la Educación Médica fuera de la Gran Bretaña, especialmente en los Estados Unidos.

Trauma Manuals Available

A new edition of "An Outline of the Treatment of Fractures" is now available. It is one of the twin treatises on fractures and other injuries sponsored by the American College of Surgeons' Committee on Trauma. The outline is designed to present a logical development of the subject of trauma to the bones. This pocket-sized manual may be obtained from the Department of Professional Services and Accreditation, American College of Surgeons, 40 East Erie Street, Chicago 11, Illinois, for one dollar each, postage prepaid.

Editorials and Comments

From the Dean's Office

I WANT to put down some of my thoughts about a matter that is troubling us these days. This is one of the most important problems our medical schools face—the open breach developing between different segments in our profession.

Those of us in the medical schools feel sorely the lack of understanding and mutual confidence shown in certain recent actions of the House of Delegates of the AMA during June sessions in Chicago. These actions concerned the types of relationships which may be developed between our medical schools and teachers within the spirit of the Code of Ethics of the AMA. If accepted or rigidly applied these actions could result in the loss of the traditional freedom of our American educational system.

It is unfortunate that in this era of outstanding superiority of American medicine we should face this troublesome and embarrassing problem. It is particularly embarrassing because an ever more health-conscious public must interpret this as a problem in economics—not in ethics.

Why has this breach occurred? It is difficult to determine all of the reasons for this but a few appear clear. One has its roots in the history of medical education in the United States. Our early medical schools were largely "trade" schools. It is a fine tribute to the profession in those early days that a group of conscientious and vigilant physicians recognized the need for "standards," and set about to exert some influence over the myriad of "schools" from which a man could obtain his certification to competency in the practice of medicine. This was an important objective in the initiation of the American Medical Association. Much good was accomplished through this early influence of the Association in setting standards for our nation's schools of medicine. The AMA was an important and progressive influence in the implementation of the recommendations of the Flexner Report, directing our medical schools to the intellectual supervision of the universities in the early part of this century.

Who can doubt that the "golden era" in American medicine dates from the 1920's to date. What accounts for this era? Many would point to importance in the acceptance by the medical schools of the traditional philosophy that research must go arm-in-arm with teaching in a vital university program. If one looks over the array of important advances in medical knowledge marking the progress of the last 30 years, it is striking and practically all have come from these university laboratories. Further, that with few exceptions they have been created by faculty members who, if not "full-time," have as their primary responsibilities the academic pursuits of teaching and research. However, it is important that these teachers in the clinical years have the opportunity, in fact the responsibility, of maintaining their acumen in clinical practice. First, these men should have talents and special knowledge of value to the community. But in addition, we do not believe a clinical teacher can

conduct the kind of balanced program we want our students to experience unless he maintains clinical contacts and skill.

Cornell is dedicated to the philosophy that the organization and conduct of an active clinical department program in teaching and research requires a nucleus of "full-time" faculty members. However, we are also convinced that there must be participation in teaching, and in research wherever possible, by the part-time faculty member whose primary responsibility lies in the practice of his profession. Only by such a balance do we believe we can maintain the type of teaching program best suited for our students.

I believe an important cause of irritation between different groups of our profession rests in certain differences between a medical college and other colleges in a university. Not only do our medical colleges produce the practitioners in our profession, and accomplish most of the significant medical research, but also the faculty members, through their staff appointments in teaching hospitals, are in the active practice of their profession. Therefore, they could represent a source of competition to our colleagues in private practice. How real a threat? Less than one hospital bed in one thousand in this country is classified as a university hospital bed. Actually, some 75 per cent of the hospital medical care in this country is given in hospitals of less than 100 beds. I can assure you that no sane or responsible medical school administration would want to be responsible for the staffing or other problems of more beds than are absolutely necessary for the clinical instruction of students. As a further means of control of any possible unfair competitive threat medical schools have applied limitations on the amount of time individuals may practice, places they may practice, or on total income of the faculty member. It is difficult to conceive of the relatively small number of "full-time" faculty physicians in this country representing a realistic competitive threat to our colleagues in private practice.

This problem has been discussed in detail because I firmly believe the current misunderstandings are due to poor communication between different groups in our profession. We in the medical schools have taken understanding too much for granted. It is inconceivable that the recent actions to which I have referred would have been taken if our position and attitudes had been widely known by our alumni, our direct relationship to the practicing profession.

E. HUGH LUCKEY, M.D., Dean

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Medical Education and Organized Medicine

MEDICAL EDUCATORS are well aware of the fact that medical education in this country developed not out of the universities, as in Germany; not out of the hospitals, as in England; but out of the practicing profession. They are also aware and deeply appreciative of the important role organized medicine played in revamping medical education at the beginning of this century and the vital role it continues to play in pro-

viding volunteer clinical teachers as well as making significant financial contribution.

Equally well recognized, however, is the fact that in the complete reorganization of medical education in 1904-1910 the control of medical education was transferred, with the blessings of the AMA's first Council on Medical Education and Hospitals, from the hands of the practicing profession to the hands of the universities. Along with other branches of education for the professions, medical education in the U. S. is no longer guild supported and guild controlled, but largely university supported and university controlled, as an important part of higher education.

With these facts in mind it is obviously neither of practical value nor in good taste for the organized medical profession to take unilateral actions or make *ex cathedra* pronouncements on matters of medical education which the public has long since decided lie within the jurisdiction of the universities and educational authorities.

That the practicing profession has a real and continuing stake in medical education is fully recognized and when, in 1942, the Liaison Committee on Medical Education was formed to bring together representatives of the Council on Medical Education and Hospitals of the American Medical Association with representatives of the Association of American Medical Colleges, the chief purpose was to give the organized profession a voice in the establishment of policies and objectives in medical education, but it was assumed that educators must make the final decisions as masters of their own house.

In the last six months it has, therefore, been quite disturbing to medical educators to find that without any effort to make use of the Liaison Committee, or get bilateral discussion with medical educators, the organized profession has (1) issued the pronouncement that henceforth clinical teachers, to be called full-time, must devote 100 per cent of their time to their university work and receive 100 per cent of their compensation from the university and (2) urged that every medical school establish a "department of general practice."

Each of these suggestions has some merit but each raises questions which are of serious importance to medical educators. Would not more progress be made if the organized profession discussed its suggestions for changes in medical education with medical educators and channeled its suggestions through the regularly constituted Liaison Committee on Medical Education rather than issuing unilateral pronouncements that come to medical educators as bolts out of the blue?

Medical education is in transition and medical educators are anxious to hear suggestions for improvement from all responsible sources. Unilateral pronouncements without joint discussion can, however, only create resentment and make more difficult the whole-hearted cooperation between medical practitioners and medical educators which has played such an important part in rescuing American medical education from a state of chaos at the beginning of the century and raising it to a position of eminence by mid-century. Here as in many other fields the need is for statesmanship of the highest order. D.F.S.



*67th Annual Meeting
of the
Association of
American Medical Colleges*

*The Broadmoor
Colorado Springs, Colorado
November 12, 13, 14, 1956*

**Officers of the Association and
Members of the Executive Council**

1955-56

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Information

Hotel

Requests for hotel reservations should be made directly to the Broadmoor, Colorado Springs, Colorado.

Rates for the meeting are as follows:

	<i>American Plan</i>
Rooms for single occupancy	\$15.50
Twin bedrooms, two persons	28.00
Parlor suites, two persons	34.00

Special arrangements have been made for covering all dining room gratuities by the addition of \$1.05 a day to the final bill.

Transportation

AIRLINES:—United from both East and West Coasts, to Denver.

Continental from Kansas City and El Paso (some flights stop in Colorado Springs).

Braniff from Memphis and Dallas (some flights stop in Colorado Springs).

Western from Minneapolis to Denver.

TRAINS:—Chicago, Rock Island & Pacific, direct to Colorado Springs.

Chicago and Northwestern to Denver, and the D. & R.G.W. to Colorado Springs.

Missouri Pacific from St. Louis to Colorado Springs.

Colorado & Southern, direct to Colorado Springs.

Registration

Registration will begin Sunday, November 11, at 9 a.m. in the lobby and will continue through Wednesday, November 14, until 12 noon. There is *no charge for registration* and all persons attending any of the meetings should register.

Women's Activities

An informal program of activities has been arranged for the women and they are urged to consult with Miss Allyn at the Registration Desk concerning the details. Short tours of interest can be easily arranged.

Pre-Conference Meetings

Sunday, November 11, has been specially reserved for meetings of the various standing committees of the Association, called by their chairman. No public meetings will be scheduled for that day.

Annual Reports of Standing Committees

Mimeographed copies of the annual reports of the Association's standing committees will be provided each person as he registers. Each is asked to bring such of these reports as he will need in attending the open hearings on these reports Monday, November 12, at 4 p.m.

Monday, November 12, 1956

9:00 A.M. INTRODUCTION OF NEW DEANS
Announcements

9:30 A.M. PRESIDENTIAL ADDRESS—ROBERT A. MOORE

10:00 A.M. REFLECTIONS FROM THE INSTITUTE

- a) The Association's Program of Teaching Institutes—George Packer Berry
- b) Development of the 1956 Institute on Appraisal of Applicants to Medical Schools—John T. Cowles
- c) Highlights of the Institute:
 - 1) Evaluating Intellectual Characteristics of the Applicant—Robert J. Glaser
 - 2) Evaluating Non-Intellectual Characteristics of the Applicant—Charles R. Strother
 - 3) A Critical Look at the Whole Admissions Process—Carlyle F. Jacobsen
- d) The Significance of this Institute from a Dean's Stand-point—John McK. Mitchell

12:00 noon LUNCH—DINING ROOM

2:00 P.M. EXPERIMENTS IN MEDICAL EDUCATION—THEATER

- William A. Steiger and A. Victor Hansen (Temple)—Teaching of Comprehensive Medicine
- Kenneth Jochim and W. Clarke Wescoe (Kansas)—A Course in Normal Human Development
- Osler Peterson (North Carolina)—General Practice in North Carolina and Its Relation to Medical Education

4:00 P.M. OPEN HEARINGS ON ANNUAL REPORTS OF COMMITTEES

- a) Audiovisual Education—Walter A. Bloedorn
- b) Continuation Education—James W. Colbert
- c) Financing Medical Education—Joseph C. Hinsey
- d) International Relations in Medical Education—Richard H. Young
- e) Internships, Residencies and Graduate Medical Education—E. Hugh Luckey
- f) Licensure Problems—J. Murray Kinsman
- g) Medical Care Plans—John F. Sheehan
- h) Planning for National Emergency—Stanley W. Olson
- i) Public Information—John L. Caughey
- j) Educational Research and Services—George Packer Berry
- k) Veterans Administration-Medical School Relationship—Joseph Hayman

7:00 P.M. ANNUAL DINNER OF THE ASSOCIATION (*Dress optional*)

- a) Nomination for the Borden Award in the Medical Sciences for 1956—Joseph Markee, Chairman of the Committee on the Borden Award
- b) Presentation of Borden Award—John H. McCain, Secretary of the Borden Company Foundation, Inc.
- c) Address—Adolph William Schmidt, President, A. W. Mellon Educational and Charitable Trust

Tuesday, November 13, 1956

9:00 A.M. BUSINESS MEETING
Roll Call

Approval of Minutes of 66th Annual Meeting
Voting in of new Individual Members and Sustaining Members
Report of Chairman of Executive Council—Robert A. Moore
Report of Secretary and Editor—Dean F. Smiley
Report of Treasurer—Stockton Kimball
Report of Director of Research—Helen H. Gee
Report of Director of Medical Audio-Visual Institute—
J. Edwin Foster
Annual Reports of Committees
Confirmation of Time and Place of 68th Annual Meeting
Presentation of Resolutions
Report of Nominating Committee

12:00 noon LUNCH—DINING ROOM

2:00 P.M. EXPERIMENTS IN MEDICAL EDUCATION

Maxwell E. Lapham (Tulane)—Cooperative Programs with
Foreign Schools
James V. Neel (Michigan)—The Functions of a Department
of Genetics in a Medical School
George A. Wolf, Jr. (Vermont)—Integration of the Last Year
of College and the First Year of Medical School
George L. Engel and William A. Greene, Jr. (Rochester)—
An Undergraduate and Graduate Training Program in the
Psychological Aspects of Medicine

7:00 P.M. DINNER—DINING ROOM

9:00 P.M. FILM PROGRAM (General Interest)
Film Program (Medical Teaching)
Meeting of the 1956-57 Executive Council

Wednesday, November 14, 1956

9:00 A.M. John Z. Bowers and Robert C. Parkin (Wisconsin)—
A "Twenty-Eight Year" Experiment in Preceptorial Medical
Education
Horace Page (Wisconsin)—Description of a Study Designed
to Evaluate Preceptorial Experience and Its Relation to the
Plans, Skills and Attitudes of Senior Medical Students
Henry J. Bakst and William Malamud (Boston U.)—Com-
bined Teaching in Human Ecology
Eugene A. Hargrove (North Carolina) Multidisciplinary
Teaching of Human Ecology in the First Year of Medicine
Granger Westberg (Chicago)—Religious Aspects of Medical
Teaching.

Read by Title Only

- Frank T. Falkner (Louisville)—An International Program in Studies of Growth
- Joseph E. Flynn (Missouri)—Teaching Pathology and Clinical Pathology as a Single Course
- William Orr (Vanderbilt)—Social and Environmental Medicine. An Evaluation
- Hebbel Hoff (Baylor)—A Laboratory for Undergraduate Teaching of Physiology and Pharmacology
- Frank M. Woolsey (Albany)—Two Way Radio Conferences in Postgraduate Medical Education
- George Barlow (Tennessee)—Preclinical Medical Teaching and Research Personnel: Quest for Tomorrow
- Richard R. Overman (Tennessee)—Research Into Collaboration
- H. P. Rusch and Van Potter (Wisconsin)—A Course in Experimental Oncology
- H. P. Rusch (Wisconsin)—The Role of a Research Institute in a Medical School
- Otto Mortenson (Wisconsin)—On the Teaching of Gross Anatomy
- Campbell Moses, Lucien A. Gregg, and T. S. Danowski (Pittsburgh)—A Design for Medical Education. A New Pattern for Modern Needs
- Edwin H. Shaw, Jr. (South Dakota)—Biochemical Contribution to an Integrated Course in Oncology at the University of South Dakota
- David R. Hawkins (North Carolina)—Contributions of Psychodynamic Principles to Preclinical Teaching Programs: An Experiment in Liaison between the Departments of Psychiatry and the Preclinical Departments of the School of Medicine
- Molly Harrower and D. Bailey Calvin (Texas)—The Use of Group Psychological Testing in the Evaluation of Medical Student Performance
- George E. Miller (Buffalo)—Teachers in Limbo

1956 Institute on Evaluation of the Student



John T. Cowles,
Ph.D., Chairman,
1956 Institute

The Institute Committee announces final program plans for the fourth annual Institute to be held November 7-10 at the Broadmoor, Colorado Springs. Discussion will center around four key topics that are relevant to the main Institute theme—the appraisal of applicants to medical schools. The program calendar for the four days is reproduced below.

1956 Institute Program

WEDNESDAY, NOVEMBER 7, 1956

- 3:00-5:00 P.M. General session, *Green Room*
Orientation session for program speakers, committee members, discussion group chairmen and recorders, and secretaries.
- 5:00-7:00 P.M. Dinner
- 7:30 P.M. Informal reception, *Ballroom*

THURSDAY, NOVEMBER 8, 1956

- 8:30 A.M. General session, *Ballroom*
Keynote address. Dr. George Packer Berry, Dr. Thomas H. Hunter, and Dr. John T. Cowles
- 9:15-9:45 A.M. Topic I—"Appraising the Intellectual Characteristics of the Medical School Applicant"—Dr. Robert J. Glaser—Chairman
Introduction—Dr. Glaser
- 9:45-10:00 A.M. **Adjourn to designated rooms for round-table discussions.*
- 10:00-11:45 A.M. Nine discussion groups on Topic I.
- 12:00 NOON-1:30 P.M. Lunch
- 1:30-3:00 P.M. General session, *Ballroom*
Topic II—"Evaluation of Non-Intellectual Characteristics of the Applicant by Means of Informal Techniques"—Dr. Joseph J. Ceithaml—Chairman
- Symposium on "The Interview as One Tool for Selection"—Dr. Joseph Zubin, Moderator; Dr. Joel Handler, Dr. Francis W. Hibler, and Dr. E. Lowell Kelly

3:00-3:15 P.M. **Adjourn to designated rooms for round-table discussions.*
3:15-4:45 P.M. Nine discussion groups on Topic II.
6:00-8:00 P.M. Dinner
8:30 P.M. General session, *Ballroom*
"Professional Students—Their Origins and Characteristics"—Panel discussion by Dr. Thomas R. McConnell and Dr. Dael Wolfe

FRIDAY, NOVEMBER 9, 1956

9:00-12:00 NOON General session, *Ballroom*
Topic III—"The Use of Formal Psychological Techniques in the Evaluation of Non-Intellectual Characteristics of Applicants"—Dr. Woodrow W. Morris—Chairman
Symposium—Dr. Carlyle F. Jacobsen, Moderator; Dr. Daniel H. Funkenstein, Dr. William Schofield, and Dr. Charles R. Strother. General discussion from the floor.
12:00 NOON-1:30 P.M. Lunch
1:30-3:00 P.M. Topic IV—"Evaluating the Admissions Process"—Dr. John L. Caughey, Jr.—Chairman
Symposium—Dr. Caughey, moderator; Dr. William E. Cadbury, Jr., Dr. John G. Darley, and Dr. Aura E. Severinghaus
3:00-3:15 P.M. **Adjourn to designated rooms for round-table discussions.*
3:15-4:45 P.M. Nine discussion groups on Topic IV.
6:00-8:00 P.M. Dinner
8:30 P.M. General session, *Ballroom*
"Relationships Between Undergraduate Colleges and Medical Schools"—Panel discussion by pre-medical educators. Dr. William E. Cadbury, Jr., Moderator; Dr. R. F. Arragon, Dr. Roy Doreus, Dr. Dorothea Miller, and Dr. Norman Witt

SATURDAY, NOVEMBER 10, 1956

9:00-11 A.M. General session, *Ballroom*
Summary of the four topic areas—Dr. Joseph J. Ceithaml, Dr. Robert J. Glaser, Dr. Woodrow W. Morris, and Dr. John L. Caughey, Jr. General discussion following.

**Designated rooms for discussion groups:*

Group I —Green Room	Group V —Chinese Room
Group II —Golf Club Sun Room	Group VI —Terrace Lounge
Group III—Golf Club West Room	Group VII —Room 123
Group IV—Golf Club Hawaiian Room	Group VIII—Room 125
Group IX —Room 127	

NEWS DIGEST

John Hay Whitney Fellowships

The eighth annual John Hay Whitney Foundation Opportunity Fellowship program for 1957-58 is being announced. Purpose of the program is to broaden opportunities in America. It is open to graduate students, professors, and young college faculty members planning to complete advanced degrees. Awards are made on the basis of formal written applications by the candidates and should be received by November 30. For information communications should be addressed to: Opportunity Fellowships, John Hay Whitney Foundation, 630 Fifth Ave., New York 20, N. Y.

Dr. Rivers Heads Polio Foundation

Dr. Thomas M. Rivers of New York City, formerly vice president of the Rockefeller Institute for Medical Research, has been appointed medical director of the National Foundation for Infantile Paralysis. He succeeds Dr. Hart E. Van Riper, who is leaving to become medical director of Geigy Pharmaceuticals.

Nutrition Certification

The American Board of Nutrition will hold the next examinations for certification as a Specialist in Human Nutrition, in April 1957, at Chicago, Ill. Candidates who wish to be considered for these examinations should forward applications to the secretary's office not later than March 1. Application forms may be

obtained from the secretary, Otto A. Bessey, Environmental Protection Research Division, Quartermaster Research and Development Center, Natick, Mass.

Dr. Smiley Named A.M.W.A. President

Dr. Dean F. Smiley, editor of the JOURNAL and secretary of the Association of American Medical Colleges, was installed as the new president of the American Medical Writers Association during the 13th annual meeting of the Association held at the Hotel Morrison, Chicago, on September 28. The meeting featured a workshop on medical writing conducted by collegiate teachers of journalism. Dr. Lee D. Van Antwerp, chairman of the educational committee of the A.M.W.A.; Professor Dwight V. Swain of the University of Oklahoma; Professor Chris Sanford of Rensselaer Polytechnic Institute; Dr. Paul Fisher of the University of Missouri and Dr. Theodore Peterson, of the University of Illinois, composed the workshop panel.

New Public Health Grants

The Public Health Service's National Institute of Neurological Diseases and Blindness announces that it is sponsoring, through grants to training institutions, a new program of postdoctoral training in the basic neurological sciences. Purpose of this program is to increase the number of trained basic scientists available for

careers in teaching and research in such fields. Applications will be acted upon in June 1957. For further information and application forms address, Chief, Extramural Programs, National Institute of Neurological Diseases and Blindness, National Institutes of Health, Bethesda 14, Md.

American Cancer Society Grants

Under its newly reorganized research program the American Cancer Society is receiving applications for research grants and will distribute at least \$7 million in 1957. This record research fund was made possible by last April's public campaign for funds, the most successful in the Society's history. Individual, project and institutional grants will be provided for investigation of problems pertinent to cancer control. Further information can be obtained by writing to the American Cancer Society, 521 West 57th St., New York 19, N. Y. Applications received before January 1, will be acted upon during the late winter and early spring, and most grants will become effective July 1, 1957.

Leukemia Grants-in-aid

The Leukemia Society, Inc., formerly the Robert Roesler de Villiers Foundation, established for the purpose of encouraging research directed at finding a means for a preventive measure, control or cure of leukemia, will award grants-in-aid to support research projects on leukemia for the year 1956-57. It will also accept applications for fellowships. Applications should be sent to Leukemia Society, Inc., 67 Wall Street, New York 5, N. Y.

New Schering Award Contest

Cardiology, mental disease and the treatment of eye disorders are the three topics chosen for the 1957 Schering Award Contest. Prize money awarded will be double the amount offered in any previous year . . . totaling \$4,500. A \$1,000 first prize and a \$500 second prize will be awarded for the best papers on each of the three topics and professionally useful gifts will be offered for other outstanding papers. Literature and entry forms are being distributed in medical schools. Students interested in participating should submit their entry forms by January 1, 1957.

College Briefs

Albany

A new administrative position, that of assistant dean and assistant director of postgraduate medical education, has been created. Dr. WILLIAM P. NELSON III, now serving as chief of medical service and assistant professor of medicine, will fill this post. He will concern himself with such undergraduate problems as admissions, health, curriculum, counselling and internships.

Baylor

New faculty appointments include: Dr. SANFORD L. STEELMAN, formerly of Armour Laboratories, Chicago, to assistant professor of biochemistry; Dr. JAMES B. WALKER, formerly of the University of Wisconsin, to assistant professor of biochemistry; Dr. JAMES C. BRENNAN, from St. John's General Hospital, St. John's, Newfoundland, joins the department of pathology; Dr. JAMES D. McMUR-



SHOWN ABOVE is the \$9 million medical science building of the Indiana University School of Medicine, which will be ready for occupancy next summer on the school's medical center campus in Indianapolis. The building has 4,587,000 cubic feet which will be devoted to lecture rooms, laboratories, departmental offices and research areas.

REY to assistant professor in the department of surgery; and Dr. SAMUEL W. BLOOM, formerly of Columbia University, to assistant professor of sociology in the department of psychiatry and neurology; Dr. THEODORE W. GREINER to assistant professor of pharmacology.

U. of Chicago

Dr. WILLIAM M. S. IRONSIDE, of the Royal Infirmary of Edinburgh, Scotland, has been appointed assistant professor of otolaryngology in the department of surgery.

Cincinnati

Dr. RICHARD W. VILTER has been appointed to the Gordon and Helen Hughes Taylor professorship of medicine and director of the college's department of internal medicine. Dr. MARION A. BLANKENHORN, who formerly held these dual posts, has re-

tired with the status of professor emeritus.

Emory

Architects are now drawing plans for construction of a new \$2 million Henrietta Egleston Hospital for Children. The hospital will be moved from its present site to the campus and become a teaching hospital.

Georgetown

Dr. CHARLES D. SHIELDS has been appointed associate dean. Dr. Shields has been professor and chairman of the department of physical medicine and rehabilitation and will retain that post in addition to the deanship.

A \$75,000 grant has been received from the Public Health Service to aid animal research. Another \$75,000 is to be added by the school and the project will involve the construction

of new animal quarters and research laboratories, and modernization of existing laboratories.

Harvard

The staff of an entire laboratory will be transplanted to the Karolinska Institute Hospital, Stockholm, Sweden, for a four month period beginning in November. Dr. CLAUDE A. VILLEE, assistant professor of biological chemistry, will direct the research much of which will be devoted to further investigation of the chemical changes taking place in the liver before and after birth. Funds for the transportation of laboratory personnel and equipment have been made available through the Association for the Aid of Crippled Children. The Karolinska Hospital has been chosen because it has unparalleled facilities to expand the group's current studies.

Iowa

Dr. JOHN W. ECKSTEIN, assistant professor in the department of internal medicine, has received a grant of \$22,000 from the Public Health Service, to cover a period of three years. The grant is made in support of studies in venous physiology.

Jefferson

Dr. J. EARL THOMAS has been named professor emeritus upon his retirement as professor and head of the department of physiology, as has Dr. ARNO E. TOWN, who resigned as professor and head of the department of ophthalmology.

Medical Evangelists

Dr. EDSON NICHOLS has been appointed professor and chairman of the department of obstetrics and gynecology. Mr. RALPH N. HIGHSMITH, associate professor of legal medicine,

has been named acting chairman of that department.

Michigan

Dr. A. JAMES FRENCH has been appointed chairman of the department of pathology. He succeeds Dr. CARL WELLER, who retired July 1.

Nebraska

The board of regents has accepted \$101,357 in federal grants for research and education. Most of the funds come from the Public Health Service.

Pennsylvania

A grant of \$179,004 has been received from the Public Health Service to assist in the construction of medical research facilities. These funds will be applied to the William H. Donner Center for Radiology to provide further research facilities.

Rochester

Dr. HERBERT R. MORGAN, chairman of the bacteriology department and director of the Health Bureau Laboratories, has assisted in the establishment of new research laboratories in Spain this fall. Under the auspices of the World Health Organization, he aided the National School of Health in Madrid in setting up a new tissue culture and virus laboratory for the Spanish government.

Saint Louis

Dr. JOHN P. WYATT, professor of pathology and associate director of the department, is spending a few months in England as a guest investigator at Scotland Yard working with the Coroner System.

Dr. J. WALTER BURDETTE has been appointed professor of clinical surgery and will also serve as Cancer Coordinator.

Audiovisual News

THE DEPARTMENT OF AUDIOVISUAL EDUCATION at the Kansas University Medical Center

DAVID S. RUHE, WILLIAM M. McGREW, MICHAEL R. KLEIN

(First of two parts)

DEPARTMENTS of visual education have appeared in most medical teaching centers under various titles.^{1,2} Such departments are symptomatic of the expanding need for better communication in medicine. They are service units, organized primarily for aid to instructors and others. They seek to do a highly technical job with honest creativity, supplying services to their faculty at reasonable cost, in quantity, and of ever finer quality, but also with ease and facility.

Everyone engaged in medical instruction soon must learn to utilize properly the range of audiovisual tools. Ultimately there must come a democratization of AV media in medicine; each instructor shall know how to make and use his own AV materials, or those of others. To proceed toward this halcyon goal of medical education this department is divided into four functional sections: 1. general services (information utilization, film and equipment library, projectionists) 2. Photography 3. Medical illustration and 4. Television. This article will take up general service.

Dr. Ruhe is head of the department of audiovisual education, Mr. McGrew is head of the Photography Section and Dr. Klein is head TV Section and Chief, Biophysics Laboratory.

General Services:

The Floor on Which the Department is Built.

It is appropriate to begin with the end: the classroom where communication occurs through teachers by and with students. AV services must be delivered well and easily at the point of utilization. Therefore, the physical state and equipment of classrooms have been our first vital considerations.

CLASSROOMS: THE HALF-FORGOTTEN LAND.

Quite probably architects expend less thought upon classrooms than upon any other functional area in the labyrinth called a medical center. But this domain is now being exploited by research workers concerned with the learning process, by engineers of lighting, heating and humidity control, and by manufacturers of seats, tables, projection equipment, etc.

A Prototype Classroom: More Experiments Needed. The Medical Audio-Visual Institute of the Association of American Medical Colleges, collaborating with Dr. Darell B. Harmon and a number of manufacturers, is constructing in this medical center an experimental multi-purpose major



For round-the-clock therapy

With two doses a day

Lipo Gantrisin 'Roche'—a new, palatable liquid for antibacterial therapy—offers three significant features:

1. Only two doses a day needed in most cases
2. Adequate twelve-hour blood levels after a single dose
3. Same therapeutic advantages as Gantrisin 'Roche'

Lipo Gantrisin® Acetyl—brand of acetyl sulfisoxazole in vegetable oil emulsion

classroom suite³ for experimentation and demonstration. During 1956-57 a prototype classroom area will be brought into physical reality from plans now drawn, incorporating newer principles for a better teaching environment.

The Major Classroom: Progressive Rehabilitation. Audiovisual alteration of each of the six major classrooms has included installation of basic fixed equipment: standard 2 x 2 and old 3½ x 4 slide projectors, a 16 mm sound motion picture projector, screen and blackboard, plus viewboxes and such light control as is necessary or practicable. Microphones for public address or for recording, UV lights with fluorescent chalk, chalk and cork boards, audio systems of varying kinds have been supplied where essential. Air conditioning has been incorporated into three auditoriums.

Equipping is done principally through the department's budget, but with important aid from other departments. Each year the cost of equipment has been a respectable item, cumulatively impressive. But equipment is cheap when compared with the alternative time wastage of students and teachers with lower impact learning. Fixed equipment, ready-to-go, is infinitely cheaper to use than the perpetual headache of "mobile" equipment which must be scheduled, delivered set up, operated (usually with grave troubles) and returned.

Our equipment is not insured, nor is it locked in cases in the rooms. It is bolted down only to discourage borrowing, for thieves would make short work of our bolts. It seems that losses by theft⁴ are not serious statistically, and quite likely can be taken in stride along with regular maintenance and replacement costs. Any obstruction to easy use, even small obstructions such as keys to cabinets, must be avoided if AV use is to become ever more intensive.

Small Classrooms: Specialization. Particular departments tend to utilize small classrooms in or near their working areas. The department assists in equipping such classrooms when indicated. Specialized small classrooms exist for teaching cardiology (with seat stethoscopes, electron cardioscope, tape recorder, etc.),⁵ surgery (gallery equipped TV experimentation),⁶ ophthalmology (with 3-D projector). Such rooms are usually departmental show places, where teaching with multiple AV tools is happily taken for granted.

Student Projectionists: Salesmen at point of Sale. Bernard V. Dryer at Western Reserve⁴ considers trained students the key staff members of his AV-TV Laboratory, since they are the salesmen at the AV firing line. They bring easy proficiency with slides, films, recordings, microphones, etc. to their teachers. Particularly do they prevent the terrors of mechanical flub-dubbing wth that booby-trap, the 16 mm projector. Slides require no real projection skill, but are shown better by trained personnel. Many other schools have worked with student aid,⁴ usually with favorable results.

Out of each class of medical and nursing students about six volunteer student projectionists are trained and taken onto the department's payroll. A chief projectionist is coordinator for each group; he serves as a clearing-house for work assignments. Students are paid at the prevailing hourly price only for time actually spent in projection, which last year amounted to some 450 hours. They keep their own time records, and report twice monthly to the departmental secretary. Since the students are already in class, formal scheduling of projectionists is needed only for out-of-class work. Any temporary interference with an individual's studies is automatically handled by the students themselves by shifting work loads. The projectionists become a corps of technicians on call for other school chores.

new from CIBA

*pharmaceutical specialties to meet the
needs of expanding medical practice*

Ritalin[®]

hydrochloride (methyl-phenylacetate hydrochloride CIBA)

is a new, mild cortical stimulant that smoothly lifts the patient out of fatigue and depression, virtually without letdown or jitters. Ritalin serves as an antidote for depression, psychogenic fatigue and lethargy due to tranquilizing agents or other drugs. DOSAGE: 10 mg. b.i.d. or t.i.d., adjusted to the individual. SUPPLIED: Tablets, 5 mg. (yellow), 10 mg. (light blue) and 20 mg. (peach-colored).

Plimasin[®]

(tripelennamine hydrochloride and methyl-phenylacetate hydrochloride CIBA)

combines an antihistamine with a new mild cortical stimulant — Ritalin — to boost patients' spirits while relieving their primary allergic symptoms. DOSAGE: 1 or 2 tablets every 4 to 6 hours if necessary. SUPPLIED: Tablets (light blue, coated), each containing 25 mg. Pyribenzamine[®] hydrochloride (tripelennamine hydrochloride CIBA) and 5 mg. Ritalin[®] hydrochloride.

Ecolid[®]

chloride (chlorisondamine chloride CIBA)

is a new ganglionic blocking agent, effective against moderate to severe refractory, even malignant, hypertension. Ecolid reduces blood pressure promptly, more consistently and more predictably than other ganglionic blockers. Two oral doses a day usually suffice. DOSAGE: Write for booklet entitled "Ecolid — A New Ganglionic Blocker for Hypertension." SUPPLIED: Tablets, 25 mg. (ivory) and 50 mg. (pink).

SerpasilinTM

(reserpine and methyl-phenylacetate hydrochloride CIBA)

provides stabilizing therapy for the emotionally insecure patient whose "up-and-down" moods range from anxiety to depression. Serpatilin combines the tranquilizing effects of Serpasil with the mildly stimulating effect of new Ritalin. DOSAGE: 1 tablet b.i.d. or t.i.d. SUPPLIED: Tablets, 0.1 mg./10 mg., each containing 0.1 mg. Serpasil[®] (reserpine CIBA) and 10 mg. Ritalin[®] hydrochloride.

Vioform[®]-Hydrocortisone Cream

Cream combines the bactericidal and fungicidal properties of Vioform[®] (iodochlorhydroxyquin U.S.P. CIBA) with the anti-inflammatory and antipruritic actions of hydrocortisone for broader control of acute or chronic skin conditions. DOSAGE: Apply 3 to 4 times daily. SUPPLIED: Cream, containing iodochlorhydroxyquin U.S.P. 3% and hydrocortisone (free alcohol) U.S.P. 1% in a water-washable base; tubes of 5 Gm. and 20 Gm.

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C I B A
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The studio projection library at the Kansas University Medical Center.

Staff Projection: Every Teacher Should Know How. The entire staff of our department is trained in projection, and is on emergency call. Instructors and assistants in several other departments (notably nursing) are trained for their special requirements. *Every* teacher should be trained; but it will take time.

INFORMATION: HOW TO FIND WHAT.

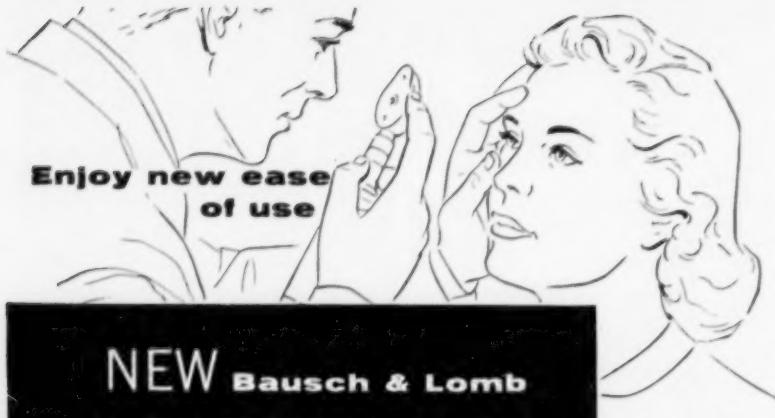
Most medical teachers today know that a volume of potentially useful AV material is somewhere available. But as yet no one has solved adequately the problem of indexing and reference to medical AV materials. A five foot shelf of catalogs, a cross-indexed card file, Library of Congress cards, and miscellaneous books provide some highly duplicative sources.

The search for up-to-date information requires never ending vigilant effort, aided by the helpful pharmaceutical house representatives, the faculty members who attend their numberless specialty meetings, and persistent culling of the AV journals. From drops one can create a stream. But information should be easier to find.

FILMS: MUCH ADO ABOUT A VITAL SUBJECT

The handling of motion pictures can be the hairshirt of an AV department. Above all, there is no substitute for a devoted and responsible secretary willing to ride herd on troublesome details.

On Borrowing and Returning Films. Ordering takes a form letter. Re-



**NEW Bausch & Lomb
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Your new diagnostic set—a pleasure to own, an inspiration to use. Completely redesigned, it has the newest in die-cast aluminum heads, positive-locking bayonet type handle connections, brilliant flicker-proof lighting from pre-focused lamps, and positive thumb-tip control of light intensity. Weight, balance and finish—all contribute to a new luxury "feel". Your supplier will show it to you—or write: Bausch & Lomb Optical Co., Rochester 2, New York.



ceiving requires a check-in and notification system. Parcel post return offers third class mailing privileges; express shipments are rarely worthwhile. We carry no film insurance, except on original films; cumulatively it is too costly; it is cheaper to buy a replacement print if one ever strays. In 1955-56, 775 films and in 1954-55 485 went through our hands without a loss.

Film Seminars. Seminars utilizing films have found some favor at KUMC. The weekly "Medical Film Seminar" is used to introduce new and valuable films to faculty and students. Seminars with films in plastic surgery, urology and ENT appear to be helpful in deepening intern-resident discussion periods. Intermittent orthopedics seminars for senior students utilizing the nine Abbott-Saunders "Surgical Approaches to the Joints"** have been productive.

Film Society. For cultural and entertainment purposes a monthly film society program brings varied film fare to "the medical center family".

A MEDICAL CENTER FILM LIBRARY: SCHOOL, DEPARTMENTAL, INDIVIDUAL.

A film library grows in three directions: There is a centralized collection, departments own (and may hold) their own, and individuals may buy or make and keep their own.

The Central Library. Each year a medical center should probably acquire, one way or another, 10 to 25 worthy medical films for repeated use. Since present-day medical films are predominantly in color, this can amount to a pretty penny. However, matching our departmental sums with monies for other departments is one way to begin. Outright prodding of departmental personnel for action on films highly useful to themselves will produce some purchases. Long term

loans from pharmaceutical houses or government agencies adds some new films.† Ultimately, our circulating film library will become a part of the Library proper, at that time when the orientation of students, faculty and staff makes this appropriate.

There is great advantage in a visible central film library. Our experience is that films displayed where passing faculty can inspect them attract unexpected uses: from nursing, P.T., O.T., and other teaching groups, from doctors wishing programs at affiliated hospitals, but above all from internes, residents and students. In a medical school an audience of one interested student is big enough; good films can and should be used for study. Our service operates on this principle.

Departmental Collections. In theory and practice decentralized holdings of films (suitably recorded centrally) are normal and good. Many departments have sole interest in certain film units, and should properly keep their possessions close for every reason of efficiency, providing they preserve them well.

Individual Films. Personalized film of cases, research, etc. logically belongs and should remain with him who made it and to whom it is most meaningful (again centrally recorded). With wide popularization of motion pictures, it is devoutly to be hoped that more and more physician-teachers will build individualized libraries of the moving stuff of medicine.

AV "Pack Rats."

The department has an inventory of AV equipment and services available throughout the medical center. This tends to discourage human pack rats who purchase valuable AV equipment and then sequester it in cabinets or drawers. Such activity is fully within the rights of the owners, but wide and effective use suffers grossly.

*Veterans Administration, Produced by Churchill-Wexler Productions.

†The possibilities of these loans have not been well explored.



YOUR STUDENTS WILL BE SITTING HERE...

The new TYCOS® Hand Model Aneroid

YOUR students will be glad in the years ahead that they started their careers with the new TYCOS Hand Model Aneroid. They'll be glad because they'll have had the unsurpassed accuracy, the ease of handling and the durability that have been proved by two generations of doctors.

The TYCOS Hand Model Aneroid is made by skilled American instrument technicians. Should your students ever require service on the instruments they buy, that service is available in all parts of the country.

We designed the new TYCOS Hand Model Aneroid with doctors' hands in mind—and you'll feel what we mean when you hold it.

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Book Reviews

The Nurse and the Mental Patient: A Study in Interpersonal Relations

By Morris S. Schwartz, Ph.D., and Emmy Lanning Shockley, M.S. Russell Sage Foundation, New York, 1956, 289 pages.

This book will probably evoke mixed—and perhaps rather violent—reactions from its readers. It is certainly not intended to be controversial and has an admirable goal, part of which, as stated by the authors is "to help the nurse expand her conception of her job and see its potentialities for satisfaction, creative activity, and personal growth." A considerable part of this is probably achieved, and the reader will not quarrel with the authors' sincere intentions.

Unfortunately, some aspects of the book are inconsistent with modern hospital settings. For one, the title identifies certain patients as "mental," presumably in contrast to those who are "physical." This implied dichotomy is at variance with the statement in the preface (Esther L. Brown, Ph.D.) that the "concepts . . . are almost equally useful to all nursing" and is somewhat old-fashioned in flavor. It may arise from the fact that much of the work was done on a small ward peopled with chronic and difficult patients which may also account for the initial 50 pages of text dealing with assaultiveness and fear.

The discussions of patients' behavior, nurses' reactions and the inter-personal relationships between the patients and the staff, though illustrated by transcriptions of actual conferences, are almost too simplified. This may be a praiseworthy attempt to eliminate professional jargon, but it leaves the impression that the nurses' comments—as recorded and transcribed are more sophisticated than the accompanying text. It also makes one wonder precisely what level of reader-orientation the authors anticipated.

On the good side, there is excellent emphasis on those elements of nursing which are the real contribution of the profession and are being threatened by the increased use of the nurse solely as administrator and teacher. These are

the traditional communicative media of ministering to physical and emotional needs, concern with day-to-day events and the observation and understanding of the minutiae of behavior. The acceptance of the importance of the nurse's own feelings may be helpfully reassuring.

If, as is implied in the preface, teaching materials in this area are too few, the book may be a useful outline and point of departure for discussion groups on this very important topic.

C. H. Hardin Branch, Utah

Clinical Hematology

Maxwell M. Wintrobe, M.D., Ph.D. Fourth Edition, 1184 pp. Lea & Febiger, Philadelphia, 1956.

The appearance of this new edition will be welcomed by the many users of this justifiably respected text. It will also provide students with a text brought abreast of hematology over the half-decade since the previous edition. Changes in organization consist mainly of giving chapter status to two subjects which have grown sufficiently in importance to warrant such treatment. One of these which is on blood groups and blood transfusions nicely simplifies a subject concerning which a complex mass of new developments have recently been reported. The other new chapter, a subdivision of the normocytic anemias, is particularly interesting from the biochemical point of view, since it deals mainly with the abnormal hemoglobin syndromes. A general thorough revision of most all sections is apparent on comparison with the previous edition.

The clear format has been retained. This, together with the happy custom of providing a skeleton outline at the head of each chapter, enables the student to maintain a grasp of the subject in its broad outline while still delving into the multitudinous specific facts. There is good correlation between changes in the migrating tissue, blood, and those of the other tissues, organs and systems of the body. In addition to this integration, a consistent and logical discussion of each disease or syndrome is begun by a careful definition of the condition, and

this is followed by the history of our knowledge of the subject, symptoms, laboratory findings, differential diagnosis, treatment and prognosis.

Although primarily a text for teaching students and practitioners of medicine, this book will appeal to laboratory and research workers as a reference source. An appendix is included which gives references to comparative hematology together with a tabulation of blood pictures in 24 different species of mammals, some of which are commonly used in experimental research. The author has managed to maintain a well-balanced, eclectic text despite the fact that many important contributions to the subject have come from his own laboratory.

Gordon W. Searle, Iowa

Synthetic Ion-Exchanges

By G. H. Osborn. The Macmillan Co., New York, 1956. 194 pp.

This short and concise book should prove very useful to all investigators who wish to utilize exchange resins for the separation of compounds having ionic properties. The commercially available resins and the basis of their operation and type of performance are described.

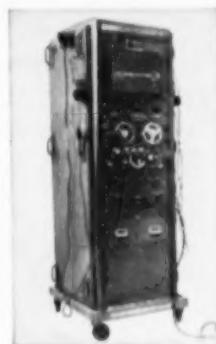
The uses of resins for the dissociation and analysis of relatively insoluble salts, of ion-exchange membranes and the possible uses of ion-exclusion techniques are presented. These relatively new developments are discussed in terms of their future potentialities and shortcomings as possible tools in a variety of problems.

The content matter of this book is for the most part clearly and concisely presented. In a few instances the wording is ambiguous or difficult to understand. These cases are not sufficiently numerous to detract significantly.

The extensive alphabetized bibliography will be extremely useful. This coupled with the brevity of the presentation of pertinent data rather than detailed discussion of the results in the literature makes it a very practical text and it should find ready acceptance by a wide group of laboratory workers.

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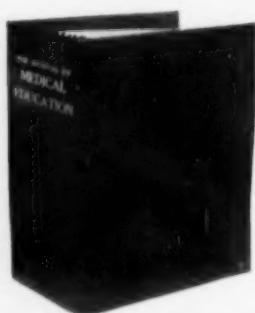
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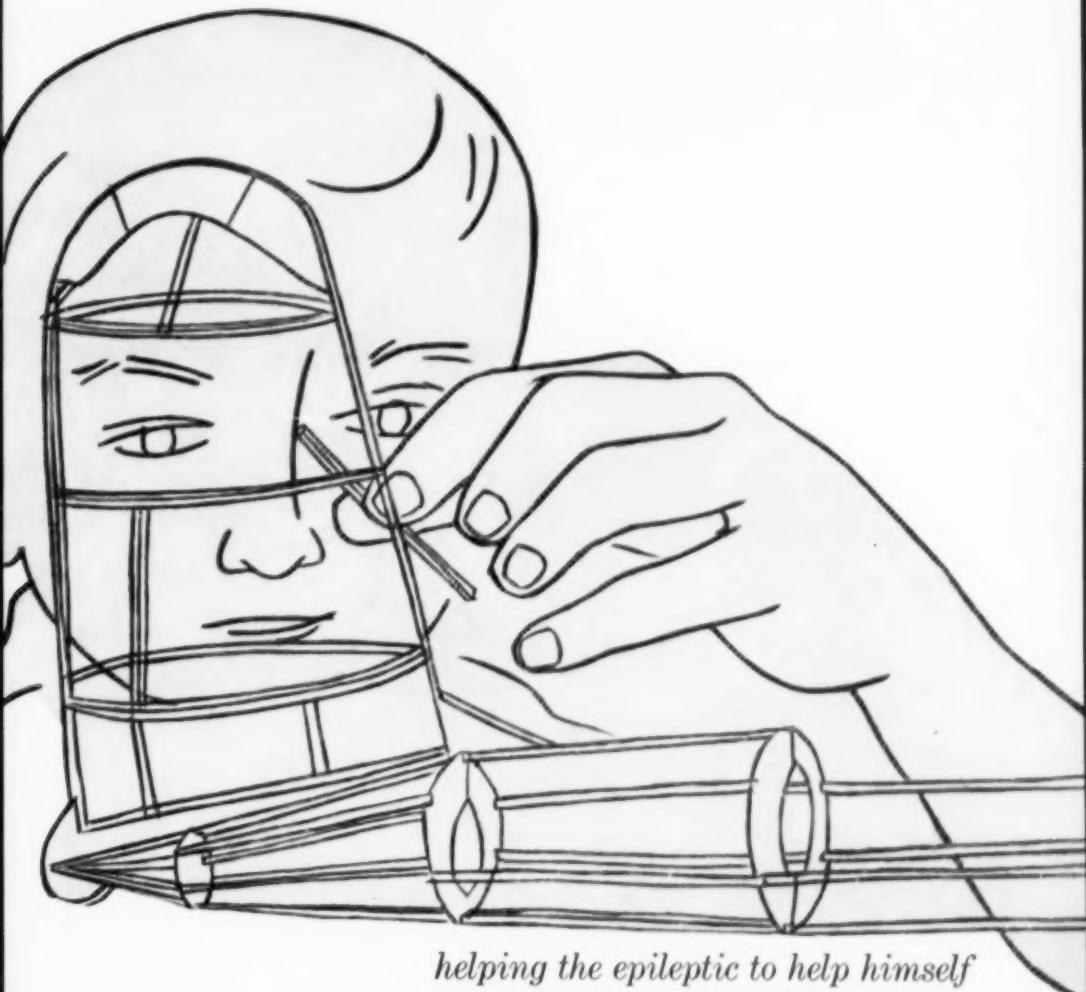
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